

Pedestrian Access Ramp Manual

Utah Department of Transportation
Traffic and Safety Division

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1. Introduction

Title II regulations under the Americans with Disabilities Act (ADA) (1990) require the Utah Department of Transportation to apply the minimum design standards, developed by the U.S. Access Board (<http://www.access-board.gov/>), when constructing or altering pedestrian facilities. The 2011 Revised Draft Guidelines for Accessible Public Rights-of-Way (PROW) call for pedestrian access ramps to be provided wherever an accessible route crosses a curb. All new pedestrian access ramp installations in the public right-of-way must comply with the current PROW standards and any existing non-compliant ramps must be retrofitted to comply. Although the PROW is a “draft” guideline, the US Access Board considers it to be the best available information for ADA requirements in the public right-of-way and therefore should be used rather than the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

Any construction, reconstruction, maintenance or permits project deemed to be an alteration is required to install or upgrade to current Department standard, any pedestrian access ramps in the project. Exceptions are listed in Section 5 of this document, **When to Install a Ramp** (page 12). Pedestrian access ramps must be addressed in the scoping phase of construction and maintenance projects. Existing ramps that do not meet the current PROW standards must be retrofitted to do so. All places that have sidewalks with curb and gutter, but no ramps must have them installed.

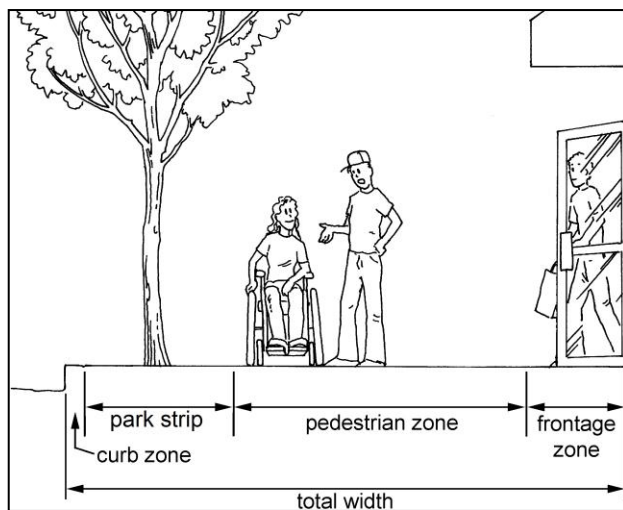
In order to comply with ADA regulations, the UDOT GW 5 Series Standard Drawings and Standard Specification 02771M were updated to reflect the most current guidance offered by the U.S. Access Board, specifically the 2011 Revised Draft Guidelines for Accessible Public Rights-of-Way.

Each corner has unique characteristics that must be taken into account in order to meet current ADA requirements. Design of pedestrian access ramps may range from very simple to complex and costly. Factors influencing the complexity include slope of existing roadways, existing utilities, drainage, and existing right-of-way.

2. Pedestrian Access Route

A pedestrian access route is a continuous accessible corridor for pedestrian use within the public right-of-way. It may be comprised of sidewalks, walking surfaces, curb ramps and crosswalks. Generally, curb ramps are needed wherever a sidewalk or other pedestrian walkway crosses a curb.

Curb ramps must be located to ensure a person with a mobility disability can travel from a sidewalk on one side of the street, over or through any curbs or traffic islands, to the sidewalk on the other side of the street. However, the ADA does not require installation of ramps or curb ramps in the absence of a pedestrian walkway with a prepared surface for pedestrian use. Nor are curb ramps required in the absence of a



The zone system ensures that pedestrians have sufficient clear space.

curb, elevation, or other barrier between the street and the walkway.

Considerations should be made for the route as a whole, regarding sidewalk width, street furniture, driveway crossings, etc. in addition to pedestrian access ramps. A good rule of thumb from *Designing Sidewalks and Trails for Access, Best Practices Design Guide* is shown in the drawing to the right. It divides the pedestrian access route into zones. The photos on the below show discontinuous and noncompliant pedestrian access routes.



Discontinuous Pedestrian Access Route



Inaccessible Pedestrian Access Route



Discontinuous Pedestrian Access Route



Inaccessible Pedestrian Access Route

Requirements for pedestrian access routes are given in the PROW, Section R302.

2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

R302 Pedestrian Access Routes

R302.1 General. Pedestrian access routes shall comply with R302.

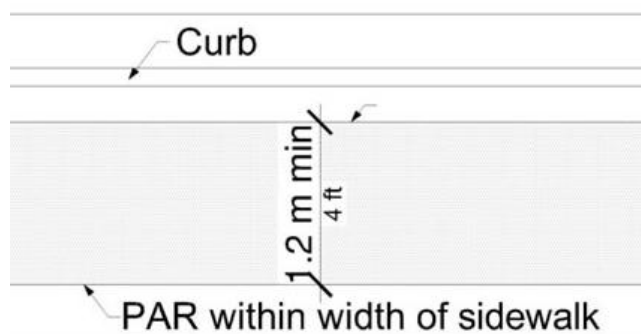
R302.2 Components. Pedestrian access routes shall consist of one or more of the following components:

1. Sidewalks and other pedestrian circulation paths, or a portion of sidewalks and other pedestrian circulation paths, complying with R302.3 through R302.7;
2. Pedestrian street crossings and at-grade rail crossings complying with R302.3 through R302.7, and R306;
3. Pedestrian overpasses and underpasses and similar structures complying with R302.3 through R302.7;
4. Curb ramps and blended transitions complying with R302.7 and R304;
5. Ramps complying with R407;
6. Elevators and limited use/limited application elevators complying with sections 407 or 408 of Appendix D to 36 CFR part 1191;
7. Platform lifts complying with section 410 of Appendix D to 36 CFR part 1191; and
8. Doors, doorways, and gates complying with section 404 of Appendix D to 36 CFR part 1191.

Advisory R302.2 Components. The technical requirement for elevators, limited use/limited application elevators, platform lifts, and doors, doorways, and gates are contained in the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities and the Architectural Barriers Act Accessibility Guidelines (36 CFR part 1191).

R302.3 Continuous Width. Except as provided in R302.3.1, the continuous clear width of pedestrian access routes shall be 1.2 m (4.0 ft) minimum, exclusive of the width of the curb.

Figure R302.3 Continuous Width



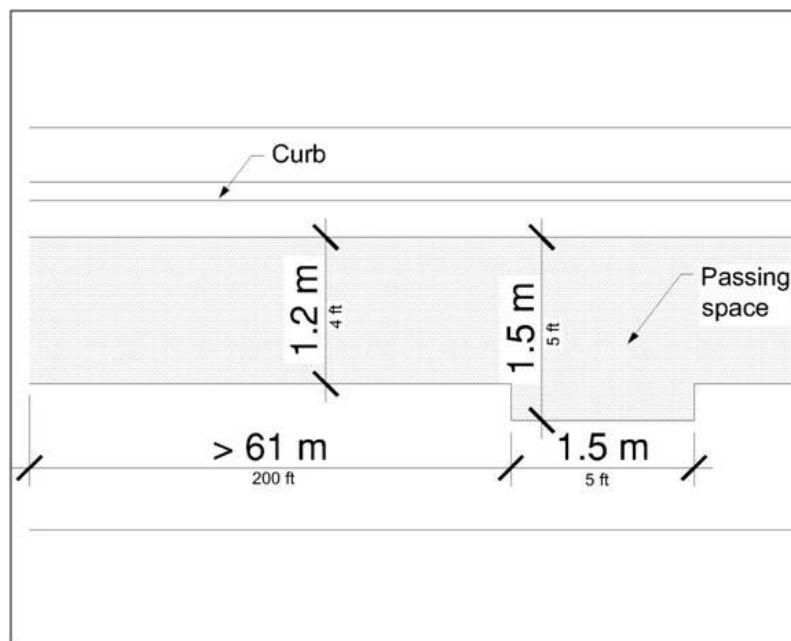
2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

Advisory R302.3 Continuous Width. The continuous clear width requirements in R302.3 apply to sidewalks and other pedestrian circulation paths, pedestrian street crossings and at-grade rail crossings, and pedestrian overpasses and underpasses and similar structures (see R302.2). Clear width requirements are contained in R304.5.1 for curb ramps and blended transitions, and in R407.4 for ramps. Where sidewalks are wider than 1.2 m (4.0 ft), only a portion of the sidewalk is required to comply with the requirements in R302.3 through R302.7. Additional maneuvering space should be provided at turns or changes in direction, transit stops, recesses and alcoves, building entrances, and along curved or angled routes, particularly where the grade exceeds 5 percent. R210 prohibits street furniture and other objects from reducing the minimum clear width of pedestrian access routes.

R302.3.1 Medians and Pedestrian Refuge Islands. The clear width of pedestrian access routes within medians and pedestrian refuge islands shall be 1.5 m (5.0 ft) minimum.

R302.4 Passing Spaces. Where the clear width of pedestrian access routes is less than 1.5 m (5.0 ft), passing spaces shall be provided at intervals of 61 m (200.0 ft) maximum. Passing spaces shall be 1.5 m (5.0 ft) minimum by 1.5 m (5.0 ft) minimum. Passing spaces are permitted to overlap pedestrian access routes.

Figure R302.4 Passing Spaces



2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

R302.5 Grade. Except as provided in R302.5.1, where pedestrian access routes are contained within a street or highway right-of-way, the grade of pedestrian access routes shall not exceed the general grade established for the adjacent street or highway. Where pedestrian access routes are not contained within a street or highway right-of-way, the grade of pedestrian access routes shall be 5 percent maximum.

Advisory R302.5 Grade. The grade requirements in R302.5 apply to sidewalks and other pedestrian circulation paths, pedestrian street crossings and at-grade rail crossings, and pedestrian overpasses and underpasses and similar structures (see R302.2). The grade of the pedestrian access route is measured parallel to the direction of pedestrian travel. Running slope requirements are contained in R304.2.2 for perpendicular curb ramps, in R304.3.2 for parallel curb ramps, in R304.4.1 for blended transitions, and in R407.2 for ramps.

R302.5.1 Pedestrian Street Crossings. Where pedestrian access routes are contained within pedestrian street crossings, the grade of the pedestrian access route shall be 5 percent maximum.

R302.5.1 Pedestrian Street Crossings. Where pedestrian access routes are contained within pedestrian street crossings, the grade of the pedestrian access route shall be 5 percent maximum.

R302.6 Cross Slope. Except as provided in R302.6.1 and R302.6.2, the cross slope of pedestrian access routes shall be 2 percent maximum.

Advisory R302.6 Cross Slope. The cross slope requirements in R302.6 apply to sidewalks and other pedestrian circulation paths, pedestrian street crossings and at-grade rail crossings, and pedestrian overpasses and underpasses and similar structures (see R302.2). The cross slope of the pedestrian access route is measured perpendicular to the direction of pedestrian travel. Cross slope requirements are contained in R304.5.3 for curb ramps and blended transitions, and in R407.3 for ramps.

R302.6.1 Pedestrian Street Crossings Without Yield or Stop Control (sign). Where pedestrian access routes are contained within pedestrian street crossings without yield or stop control (sign), the cross slope of the pedestrian access route shall be 5 percent maximum.

2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

Advisory R302.6.1 Pedestrian Street Crossings Without Yield or Stop Control (sign). Pedestrian street crossings without yield or stop control (sign) are crossings where there is no yield or stop sign, or where there is a traffic signal that is designed for the green phase. At pedestrian street crossings without yield or stop control (sign), vehicles can proceed through the intersection without slowing or stopping. Where pedestrian access routes are contained within pedestrian street crossings with yield or stop control (sign), the cross slope of the pedestrian access route must be 2 percent maximum (see R302.6). At pedestrian street crossings with yield or stop control (sign), vehicles slow or stop before proceeding through the intersection.

R302.6.2 Midblock Pedestrian Street Crossings. Where pedestrian access routes are contained within midblock pedestrian street crossings, the cross slope of the pedestrian access route shall be permitted to equal the street or highway grade.

R302.7 Surfaces. The surfaces of pedestrian access routes and elements and spaces required to comply with R302.7 that connect to pedestrian access routes shall be firm, stable, and slip resistant and shall comply with R302.7.

Advisory R302.7 Surfaces. The surface requirements in R302.7 apply to sidewalks and other pedestrian circulation paths, pedestrian street crossings and at-grade rail crossings, pedestrian overpasses and underpasses and similar structures, and curb ramps and blended transitions (see R302.2). The surface requirements in R302.7 also apply to surfaces at the following accessible elements and spaces that connect to pedestrian access routes:

- Clear spaces (see R404.2), including clear spaces at operable parts (see R403.2) such as accessible pedestrian signals and pedestrian pushbuttons (see R209), clear spaces at street furniture such as benches (see R212.6), and clear spaces within transit shelters (see R308.2);
- Boarding and alighting areas and boarding platforms at transit stops (see R308.1.3.1);
- Access aisles at accessible parking spaces (see R309.2.1 and R309.3) and accessible passenger loading zones (see R310.3.4); and
- Ramp runs and landings (see R407.7).

R302.7.1 Vertical Alignment. Vertical alignment shall be generally planar within pedestrian access routes (including curb ramp runs, blended transitions, turning spaces, and gutter areas within pedestrian access routes) and surfaces at other elements and spaces required to comply with R302.7 that connect to pedestrian access routes. Grade breaks shall be flush. Where pedestrian access routes cross rails at grade, the pedestrian access route surface shall be level and flush with the top of rail at the outer edges of the rails, and the surface between the rails shall be aligned with the top of rail.

2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

Advisory R302.7.1 Vertical Alignment. Pedestrian access route surfaces must be generally planar and smooth. Surfaces should be chosen for easy rollability. Surfaces that are heavily textured, rough, or chamfered and paving systems consisting of individual units that cannot be laid in plane will greatly increase rolling resistance and subject pedestrians who use wheelchairs, scooters, and rolling walkers to the stressful and often painful effects of vibration. Such materials should be reserved for borders and decorative accents located outside of or only occasionally crossing the pedestrian access route. Surfaces should be designed, constructed, and maintained according to appropriate industry standards, specifications, and recommendations for best practice.

R302.7.2 Vertical Surface Discontinuities. Vertical surface discontinuities shall be 13 mm (0.5 in) maximum. Vertical surface discontinuities between 6.4 mm (0.25 in) and 13 mm (0.5 in) shall be beveled with a slope not steeper than 50 percent. The bevel shall be applied across the entire vertical surface discontinuity.

Figure R302.7.2 Vertical Surface Discontinuities

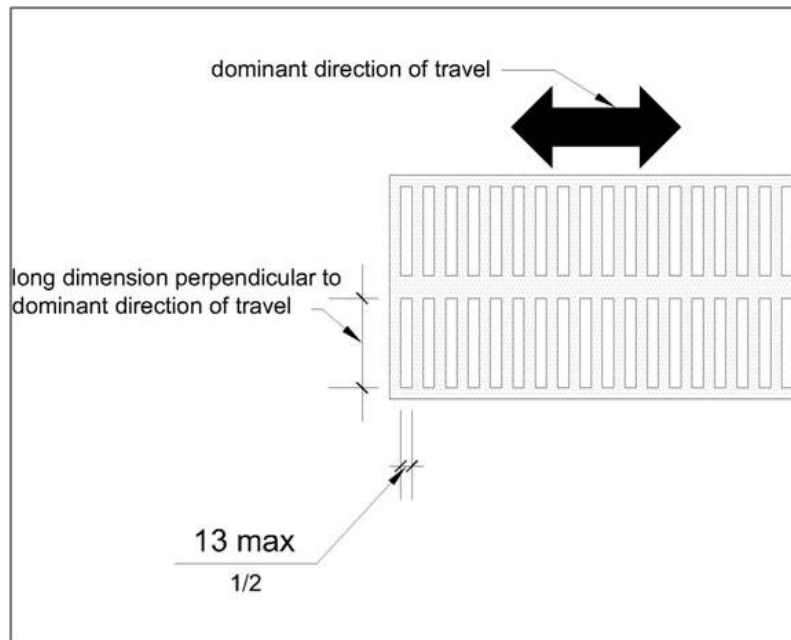


Advisory R302.7.2 Vertical Surface Discontinuities. The allowance for vertical surface discontinuities is for occasional expansion joints and objects such as utility covers, vault frames, and gratings that cannot be located in another portion of the sidewalk outside the pedestrian access route. However, objects such as utility covers, vault frames, and gratings should not be located on curb ramp runs, blended transitions, turning spaces, or gutter areas within the pedestrian access route. This may not always be possible in alterations, but should be avoided wherever possible. Vertical surface discontinuities between unit pavers should be minimized.

R302.7.3 Horizontal Openings. Horizontal openings in gratings and joints shall not permit passage of a sphere more than 13 mm (0.5 in) in diameter. Elongated openings in gratings shall be placed so that the long dimension is perpendicular to the dominant direction of travel.

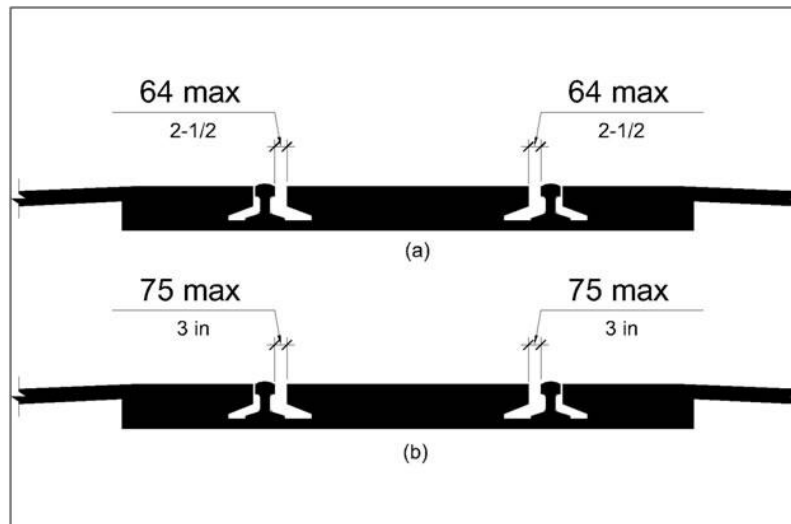
2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

Figure R302.7.3 Horizontal Openings



R302.7.4 Flangeway Gaps. Flangeway gaps at pedestrian at-grade rail crossings shall be 64 mm (2.5 in) maximum on non-freight rail track and 75 mm (3 in) maximum on freight rail track.

Figure R302.7.4 Flangeway Gaps



Advisory R302.7.4 Flangeway Gaps. Flangeway gaps are necessary to allow the passage of train wheel flanges. Flangeway gaps pose a potential hazard to pedestrians who use wheelchairs because the gaps can entrap the wheelchair casters.

Pedestrian Access Route Problems and Solutions

Problem:

Poles or other obstacles reduce functional or usable width of sidewalk to less than 48 inches.



Possible Solutions:

Expand sidewalk around the pole to maintain a minimum 48 inch sidewalk width or relocate sidewalk behind obstacles.



Problem:

Pedestrian signal button is inaccessible to someone in a wheelchair.



Possible Solutions:

Locate signal pole or install a separate pole as close to sidewalk as possible. It is best to have the ramp landing next to the pedestrian signal button.



Problem:

Driveway crossings that create a cross slope greater than 2% on sidewalk.



Possible Solutions:

Slope driveway toward street, but maintain a 2% cross slope on the sidewalk. Then continue sloping driveway toward street.



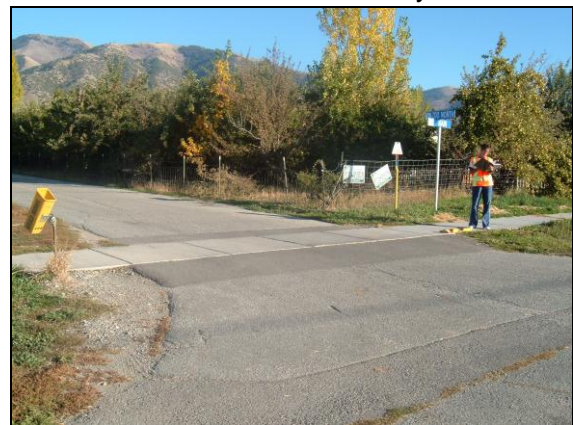
Problem:

Sidewalk terminates at driveway crossing.



Possible Solutions:

Extend sidewalk across driveway.



3. Planning

The ramps should be considered in the scoping phase of construction and maintenance projects. This allows them to be considered when determining funding levels for a project. All locations with existing ramps and all locations in need of ramps must be identified within the project boundaries. Information about the current compliance of individual ramps may be obtained from the Division of Traffic and Safety.

4. Funding

With any project that is identified by UDOT policy 06C-16, installation or modification of all curb ramps within the project boundaries must be included into the project. All existing ramps must be brought up to current standards and installation will be required in all locations where there should be pedestrian access ramps, but none exist. All future projects must include pedestrian access ramps in the scoping phase of the project design process.

5. When to Install a Ramp

Any construction, reconstruction, maintenance, or permits project deemed to be an alteration is required to install or upgrade to current Department standard, any pedestrian access ramps within the project limits. Pedestrian access ramps should be addressed in the design phase of construction and maintenance projects. Projects will install new pedestrian access ramps in locations that have existing curb and gutter and sidewalk but lack pedestrian access ramps.

The following specific maintenance treatments are exempt from including pedestrian access ramps:

1. Crack Filling and Sealing
2. Surface Sealing (includes rejuvenation)
3. Chip Seals
4. Slurry Seals (excluding micro-surfacing)
5. Fog Seals
6. Scrub Sealing
7. Joint crack seals
8. Joint repairs
9. Dowel bar retrofit
10. Spot high-friction treatments
11. Diamond grinding
12. Pavement patching

2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

R201 Application

R201.1 Scope. All newly constructed facilities, altered portions of existing facilities, and elements added to existing facilities for pedestrian circulation and use located in the public right-of-way shall comply with the requirements in this document.

Advisory R201.1 Scope. The requirements in this document are to be applied to all areas of a facility within the scope of the project. Where multiple features of the same type are provided, such as on-street parking spaces, and a percentage of the features are required to be accessible, only the required number of features must comply with the technical requirements in this document and be connected to a pedestrian access route. Where elements are provided on a site that is a designated portion of a public right-of-way, the elements are required to comply with the applicable requirements in this document instead of the requirements in the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities and the Architectural Barriers Act Accessibility Guidelines (36 CFR part 1191).

R207 Curb Ramps and Blended Transitions

R207.1 General. A curb ramp, blended transition, or a combination of curb ramps and blended transitions complying with R304 shall connect the pedestrian access routes at each pedestrian street crossing. The curb ramp (excluding any flared sides) or blended transition shall be contained wholly within the width of the pedestrian street crossing served.

R207.2 Alterations. In alterations where existing physical constraints prevent compliance with R207.1, a single diagonal curb ramp shall be permitted to serve both pedestrian street crossings.

Except as listed below, pedestrian access ramps shall be installed:

- Wherever a sidewalk crosses a street and cuts through the curb.
- Wherever a pedestrian signal button exists.

Pedestrian access ramps do not have to be installed:

- In areas where no sidewalk and curb and gutter exist and there are no plans in the near future to install sidewalk.
- In areas that are restricted to all pedestrians.
- When technically infeasible

6. Design Process

Each location has unique characteristics that must be taken into account in order to meet current ADA requirements. These characteristics influence what type of ramp should be installed. Factors influencing the complexity include slope of existing roadways, existing utilities, drainage, and existing right-of-way. Some locations are much more difficult to construct according to the requirements and often require a carefully thought out design.

Construction Tolerances

ADA requirements do not have construction tolerances. Minimum and maximum values are given and anything outside of the specified range is noncompliant no matter how small the difference is.

New Construction vs. Alterations

New Construction

In new construction there are few reasons for a ramp not to meet the requirements of the GW 5 Series Standard Drawings. Full compliance is generally easier in new construction because the scope of work is usually extensive enough to allow necessary grading and acquisition of sufficient right-of-way. Projects that are considered new construction include:

- Pavement Reconstruction
- Roadway Widening
- New Roads

Alterations

The vast majority of the projects done are alterations to existing facilities or the addition of facilities within the constraints posed by existing developed rights-of-way. The more extensive the project is, the easier it is to achieve full compliance. In areas where full compliance is not possible due to existing conditions, a technical infeasibility may be used.

Technical Infeasibilities

Technical infeasibilities are described in the Draft Guidelines for Accessible Public Rights-of-Way under Section R202.1 and UDOT Policy 06C-16.

2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

R202 Alterations and Elements Added to Existing Facilities

R202.1 General. Alterations and elements added to existing facilities shall comply with R202. Where elements are altered or added and the pedestrian circulation path to the altered or added elements is not altered, the pedestrian circulation path is not required to comply with R204.

Advisory R202.1 General. Where possible, added elements should be located on an existing pedestrian access route.

UDOT Policy 06C-16

A technical infeasibility is an exception in the Guidelines for Accessible Public Right-of-Way. It can only be used in an alteration where compliance with applicable provision is technically infeasible. The alteration will comply with Standards to the maximum extent feasible.

Technical infeasibilities include major impact to permanent structures and major utilities (ex: municipal water/sewer/storm drain systems, high voltage electrical poles/lines), excessive street slopes, or the physical terrain, provided an engineering analysis has been completed to demonstrate that work cannot be done without significantly altering the terrain or permanent structures.

A lack of project funding is not a technical infeasibility.

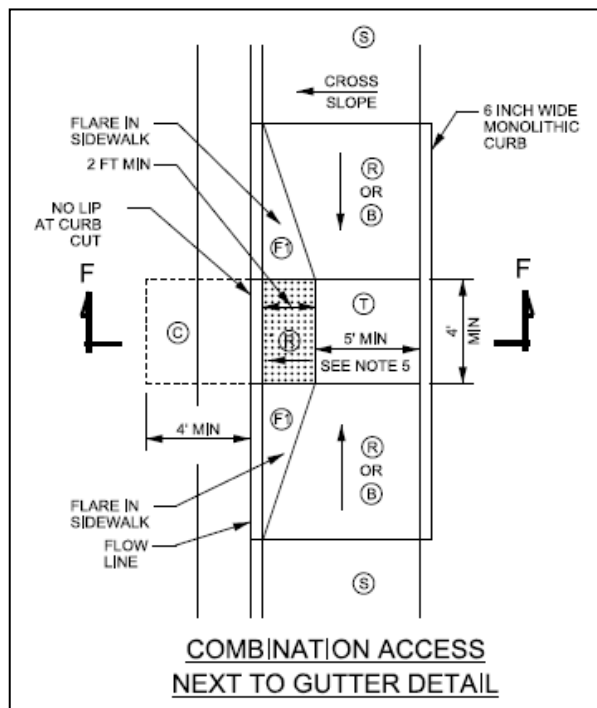


All technical infeasibilities on all projects must be submitted through the design exception process. The District Engineer or the Region ADA Coordinator will determine technical infeasibility. It may be necessary to perform additional survey to determine technical infeasibility and ensure the ramp complies with the maximum extent possible.

Reading the Standard Drawings

The most important idea in the GW 5 Series Standard Drawings is that the configurations of the ramps, blended transitions and turning spaces may be changed, but they must meet the size dimensions and slope requirements.

An example of a Combination Access next to gutter is shown on the next page, shows all the dimensions required by ADA. All slopes are shown in the adjoining Slope Table.



SLOPE TABLE			
	ITEM	MAX. RUNNING SLOPE *	MAX. CROSS SLOPE *
(T)	TURNING SPACE	2%	2% (d)
(R)	RAMP	8.3% (a) 5.1% MIN	2% (d)
(B)	BLENDED TRANSITION	5%	2% (d)
(C)	CLEAR SPACE/GUTTER **	5% (b)	2% (d)
(S)	SIDEWALK	—	2%
(F1)	FLARE WITHIN SIDEWALK	10% (c)	—
(F2)	FLARE NOT IN SIDEWALK	25% (c)	—
	CROSSWALK	5%	2% (e) (f)

* RUNNING SLOPE IS IN THE DIRECTION OF PEDESTRIAN TRAVEL.
CROSS SLOPE IS PERPENDICULAR TO PEDESTRIAN TRAVEL.

** SEE CLEAR SPACE/GUTTER DETAIL C

(a) LENGTH OF RUNNING SLOPE FOR RAMPS IS NOT REQUIRED TO EXCEED 15 FT.

(b) MAINTAIN CONSISTENCY OF CLEAR SPACE RUNNING SLOPE ACROSS ENTIRE CURB CUT. WARP GUTTER PAN TO MEET REQUIRED CLEAR SPACE SLOPE AT CURB CUT.

(c) MEASURE FLARE SLOPE PARALLEL TO CURB LINE.

(d) DO NOT EXCEED THE ROADWAY PROFILE GRADE FOR THE CROSS SLOPE AT CROSSWALKS WITHOUT A STOP OR YIELD SIGN AND AT MID-BLOCK CROSSWALKS.

(e) DO NOT EXCEED 5 PERCENT CROSS SLOPE AT CROSSWALKS AT INTERSECTIONS WITHOUT A STOP OR YIELD SIGN.

(f) DO NOT EXCEED A CROSS SLOPE EQUAL TO THE STREET OR HIGHWAY GRADE AT MID-BLOCK CROSSWALKS.

7. Common Elements of Curb Ramps and Blended Transitions

Common Elements

Turning Space

A turning space must be provided in order for a person in a wheelchair to have a place to easily press the pedestrian signal button or wait to cross the street. If the intersection is signalized the pedestrian button should be located as close to the turning space as practical. The turning space width must be the larger of the curb cut width or a 4.0 ft. minimum. The unconstrained turning space depth is 4 ft minimum. For depth for constrained turning spaces see requirements for individual ramp types. For other turning space requirements see the common elements section. See the requirements for individual ramp types.

Clear Space/Gutter

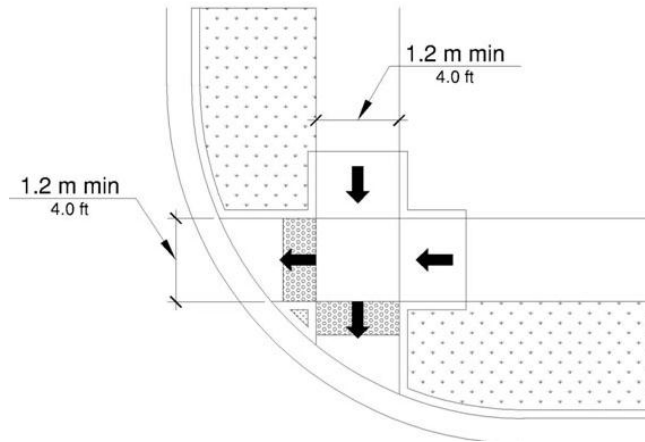
The clear space/gutter begins at the curb line and extends four feet out into the roadway. This includes the gutter pan. The clear space size: A 4 ft depth and the larger of the curb cut width or a 4.0 ft. minimum width. For other clear space requirements see the common elements section. Often, negotiating the ramp into the street takes a majority of the crossing time for a pedestrian in a wheelchair. The clear space is provided so that they can negotiate the ramp before the pedestrian crossing time starts and wait in the clear space.

2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

R304.5 Common Requirements. Curb ramps and blended transitions shall comply with R304.5.

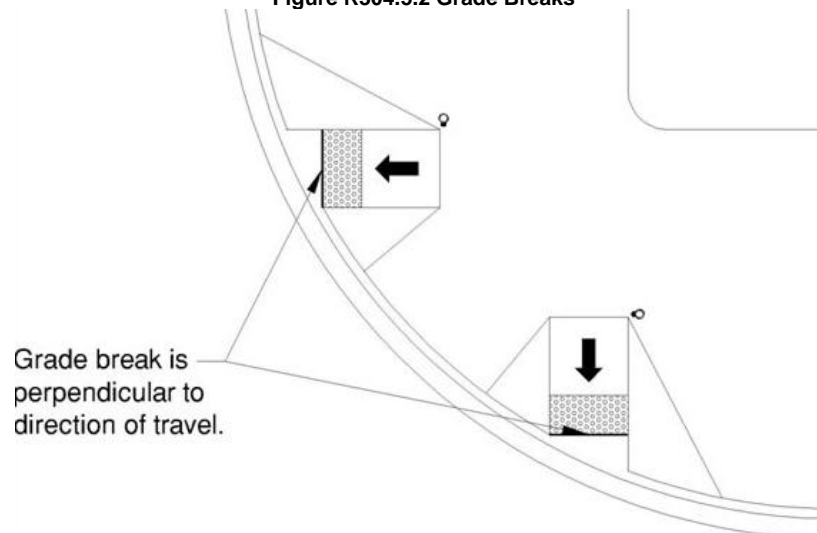
R304.5.1 Width. The clear width of curb ramp runs (excluding any flared sides), blended transitions, and turning spaces shall be 1.2 m (4.0 ft) minimum.

Figure R304.5.1 Width



R304.5.2 Grade Breaks. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.

Figure R304.5.2 Grade Breaks



R304.5.3 Cross Slope. The cross slope of curb ramps, blended transitions, and turning spaces shall be 2 percent maximum. At pedestrian street crossings without yield or stop control and at midblock pedestrian street crossings, the cross slope shall be permitted to equal the street or highway grade.

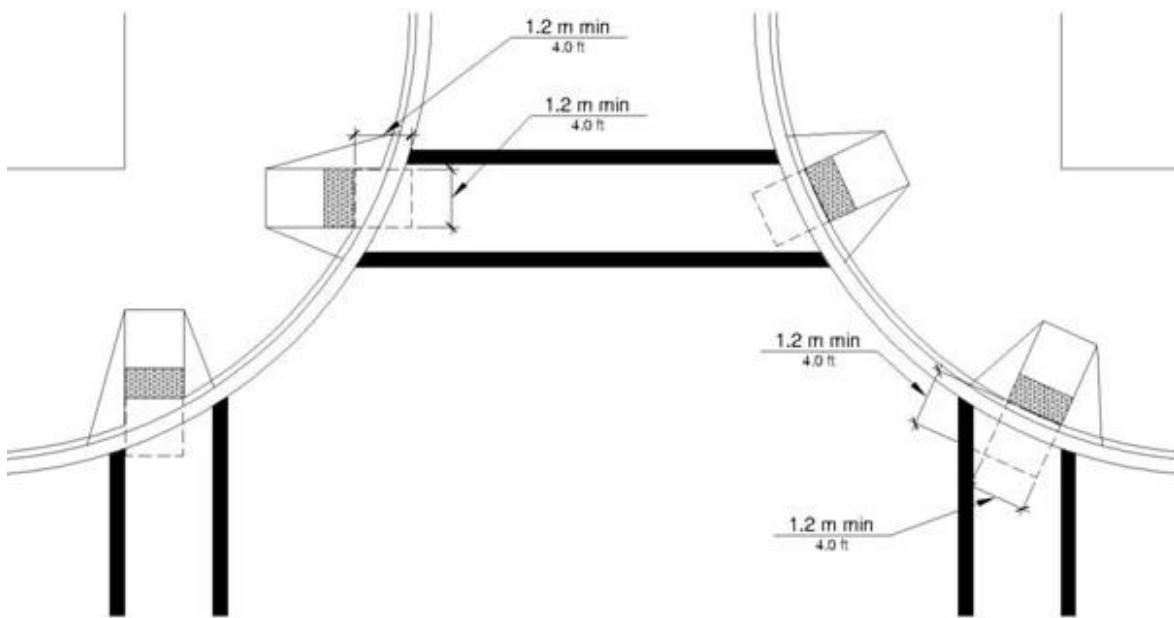
2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

Advisory R304.5.3 Cross Slope. Pedestrian street crossings without yield or stop control are crossings where there is no yield or stop sign, or where there is a traffic signal that is designed for the green phase. At pedestrian street crossings without yield or stop control, vehicles can proceed through the intersection without slowing or stopping.

R304.5.4 Counter Slope. The counter slope of the gutter or street at the foot of curb ramp runs, blended transitions, and turning spaces shall be 5 percent maximum.

R304.5.5 Clear Space. Beyond the bottom grade break, a clear space 1.2 m (4.0 ft) minimum by 1.2 m (4.0 ft) minimum shall be provided within the width of the pedestrian street crossing and wholly outside the parallel vehicle travel lane.

Figure R304.5.5 Clear Space



Curb Ramps and Blended Transitions

2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

R304 Curb Ramps and Blended Transitions

R304.1 General. Curb ramps and blended transitions shall comply with R304.

2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

Advisory R304.1 General. There are two types of curb ramps:

- Perpendicular curb ramps have a running slope that cuts through or is built up to the curb at right angles or meets the gutter break at right angles where the curb is curved. On large corner radiuses, it will be necessary to indent the gutter break on one side of the curb ramp in order for the curb ramp to meet the gutter break at right angles.
- Parallel curb ramps have a running slope that is in-line with the direction of sidewalk travel and lower the sidewalk to a level turning space where a turn is made to enter the pedestrian street crossing.

Perpendicular curb ramps can be provided where the sidewalk is at least 3.7 m (12.0 ft) wide. Parallel curb ramps can be provided where the sidewalk is at least 1.2 m (4.0 ft) wide. Parallel and perpendicular curb ramps can be combined. A parallel curb ramp is used to lower the sidewalk to a mid-landing and a short perpendicular curb ramp connects the landing to the street. Combination curb ramps can be provided where the sidewalk is at least 1.8 m (6.0 ft) wide.

Blended transitions are raised pedestrian street crossings, depressed corners, or similar connections between pedestrian access routes at the level of the sidewalk and the level of the pedestrian street crossing that have a grade of 5 percent or less. Blended transitions are suitable for a range of sidewalk conditions.

Ramp Types & Blended Transitions

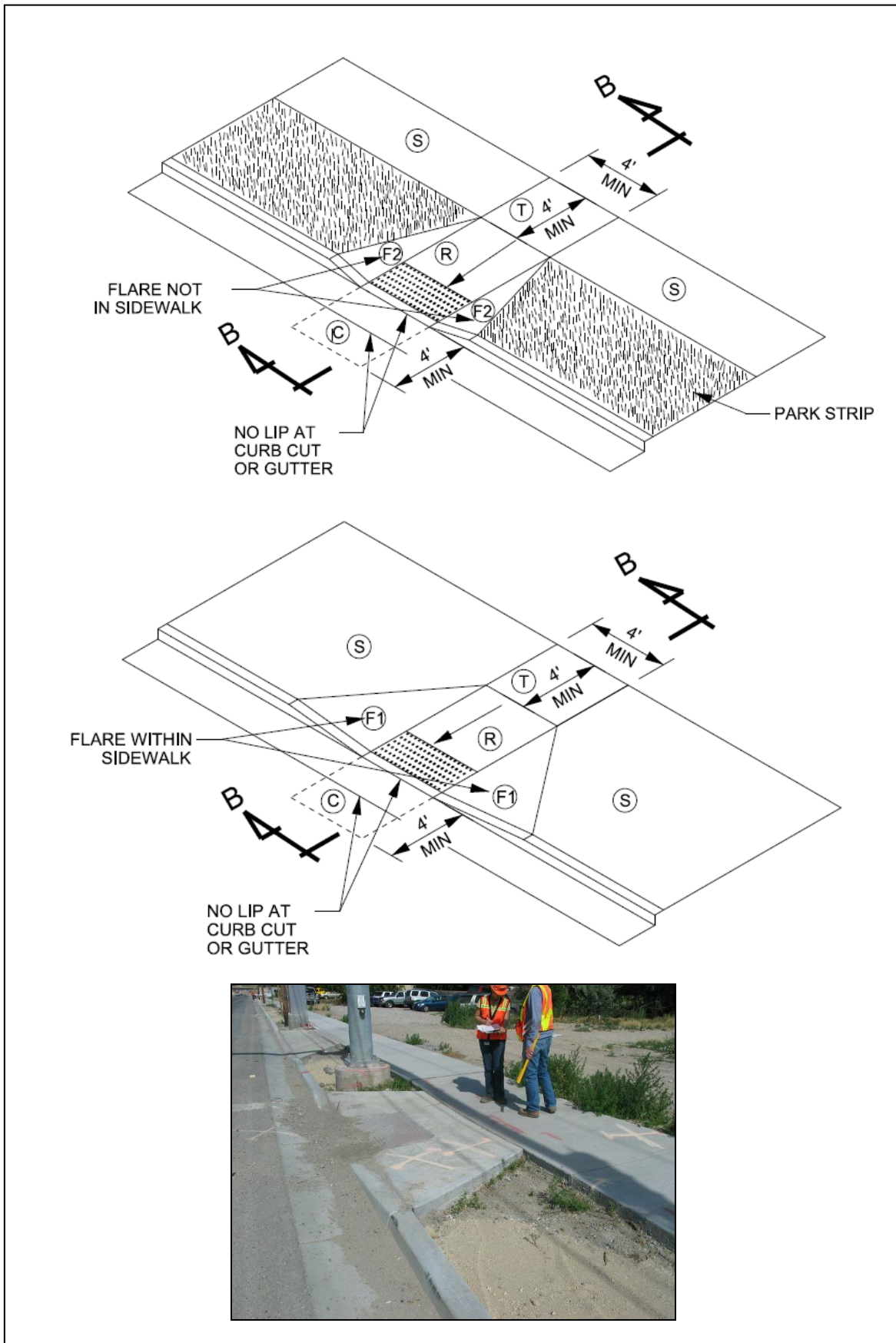
The ramp types are:

- *Perpendicular*
- *Parallel*
- *Combined*

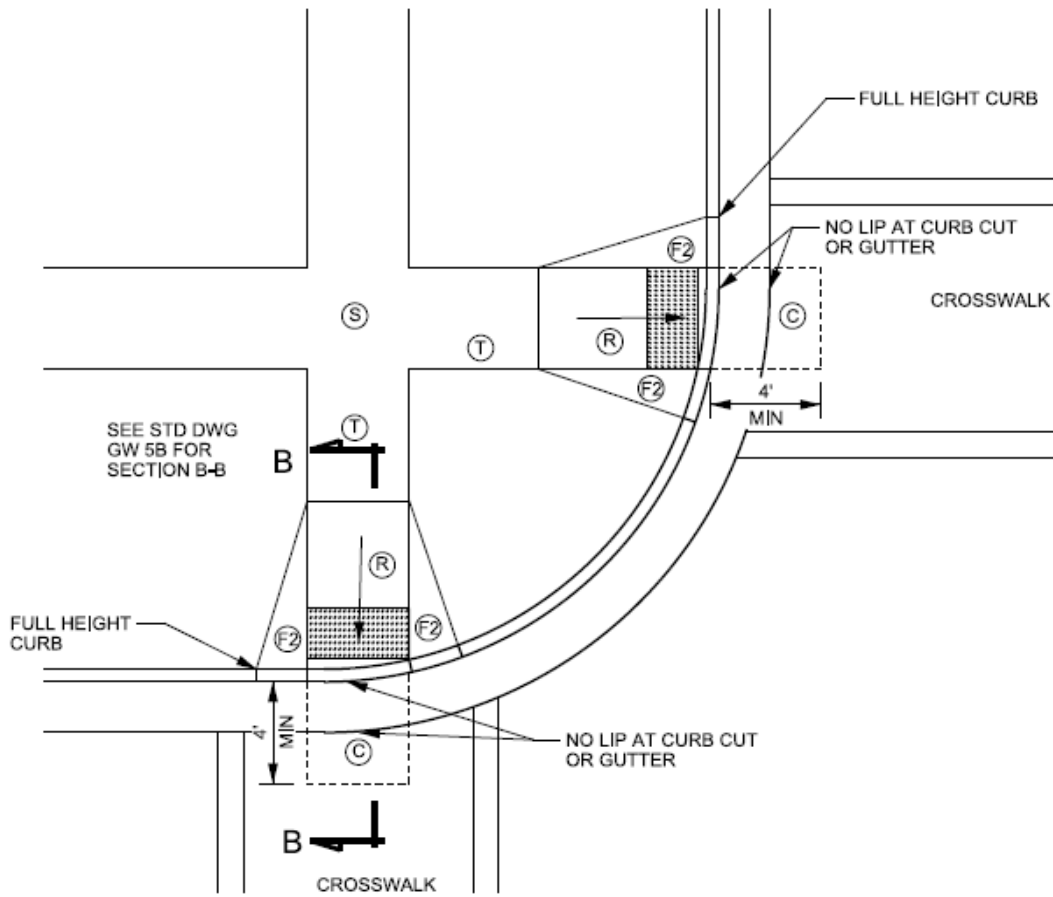
The descriptions and examples of each of the different ramp types are shown on the following pages.

Perpendicular

A perpendicular curb ramp cuts through a curb line at right angles. Such a ramp may have curb walls along the sides if it is in a parkway or landscape strip but should have flared sides if pedestrians may walk across them. Examples of perpendicular ramps are shown on the following pages.



Mid-block Perpendicular Ramps



DUAL PERPENDICULAR CORNER RAMP EXAMPLE



Dual Perpendicular Ramps on a Corner



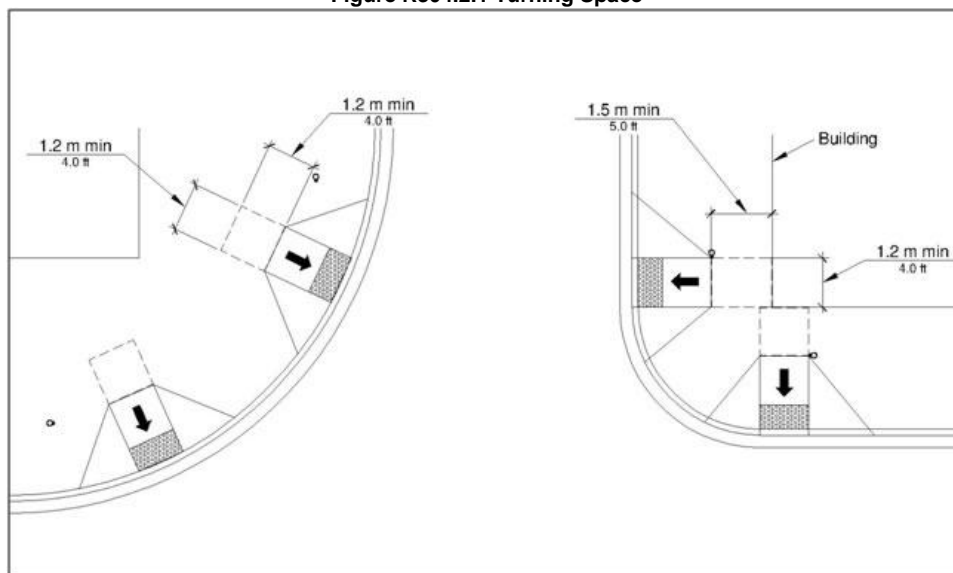
Perpendicular Ramp at the Apex of a Corner

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R304.2 Perpendicular Curb Ramps. Perpendicular curb ramps shall comply with R304.2 and R304.5.

R304.2.1 Turning Space. A turning space 1.2 m (4.0 ft) minimum by 1.2 m (4.0 ft) minimum shall be provided at the top of the curb ramp and shall be permitted to overlap other turning spaces and clear spaces. Where the turning space is constrained at the back-of-sidewalk, the turning space shall be 1.2 m (4.0 ft) minimum by 1.5 m (5.0 ft) minimum. The 1.5 m (5.0 ft) dimension shall be provided in the direction of the ramp run.

Figure R304.2.1 Turning Space

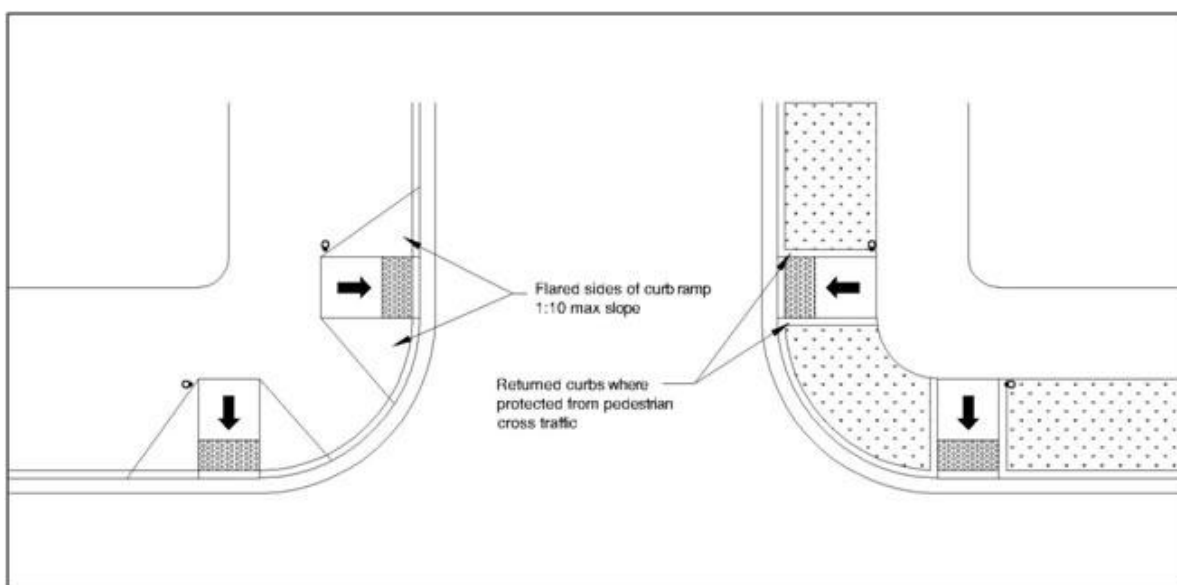


2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

R304.2.2 Running Slope. The running slope of the curb ramp shall cut through or shall be built up to the curb at right angles or shall meet the gutter grade break at right angles where the curb is curved. The running slope of the curb ramp shall be 5 percent minimum and 8.3 percent maximum but shall not require the ramp length to exceed 4.5 m (15.0 ft). The running slope of the turning space shall be 2 percent maximum.

R304.2.3 Flared Sides. Where a pedestrian circulation path crosses the curb ramp, flared sides shall be sloped 10 percent maximum, measured parallel to the curb line.

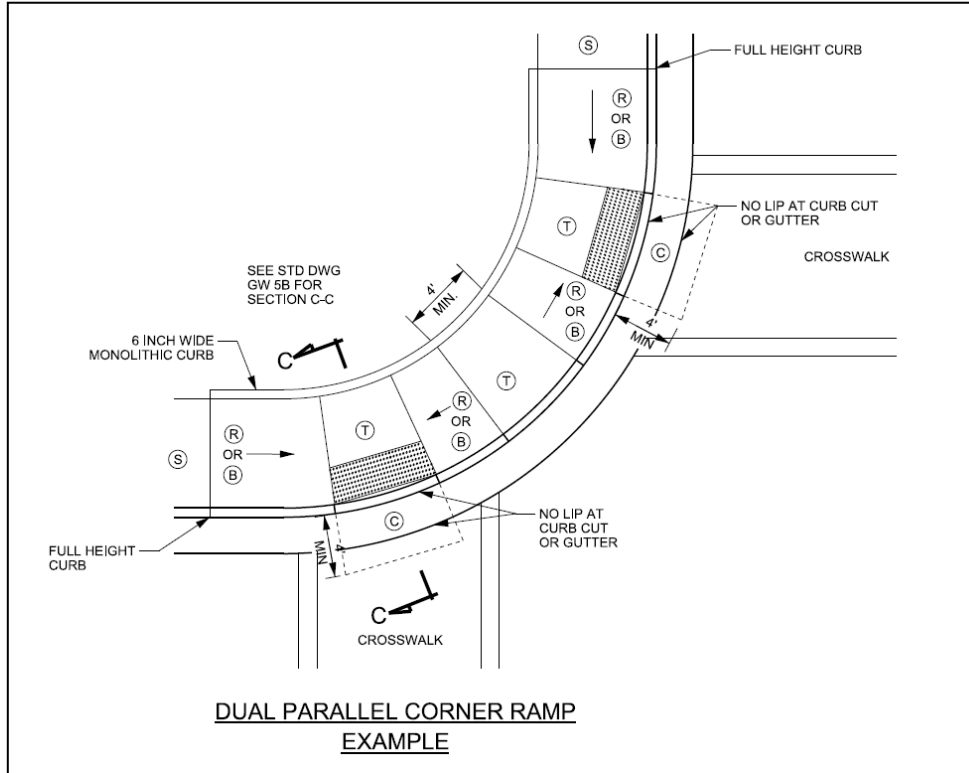
Figure 304.2.3 Flared Sides



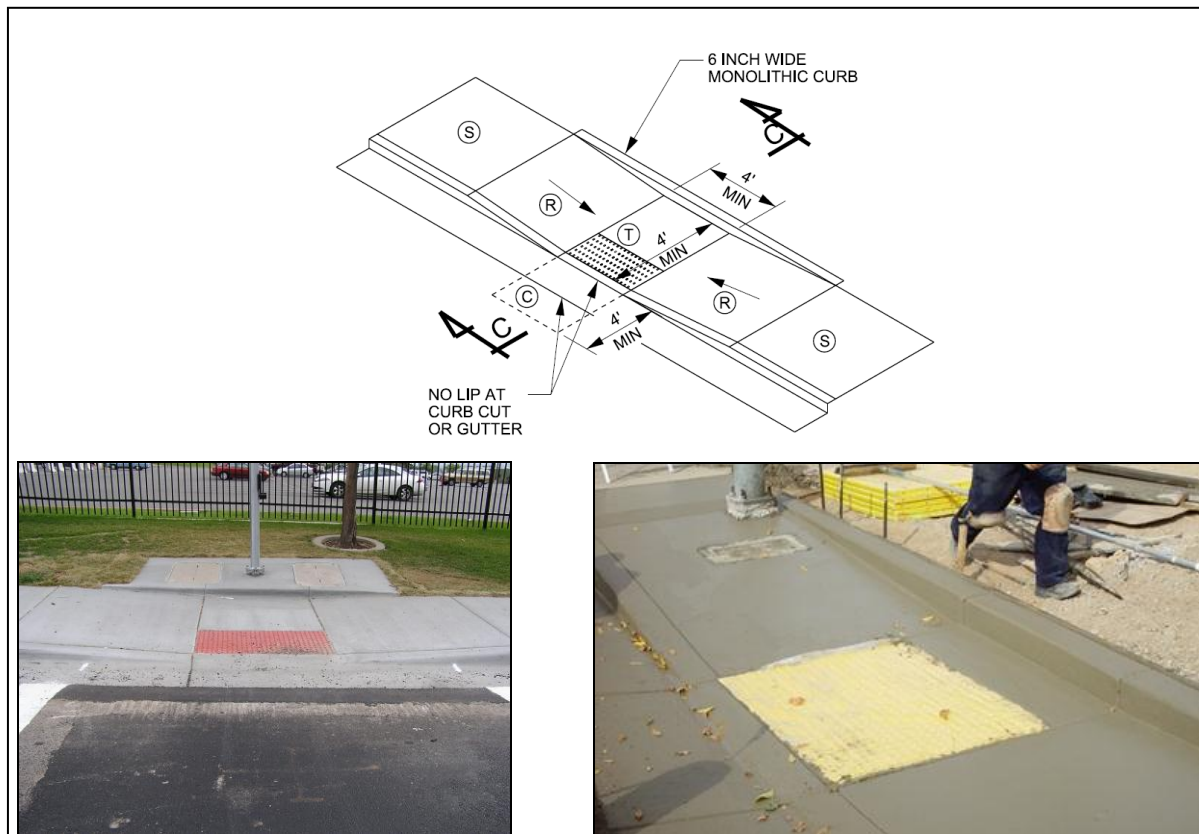
Advisory R304.2.3 Flared Sides. The flared sides are part of the pedestrian circulation path, but are not part of the pedestrian access route. Curb ramps whose sides have returned curbs provide useful directional cues where they are aligned with the pedestrian street crossing and are protected from cross travel by landscaping, street furniture, chains, fencing, or railings.

Parallel

In a parallel curb ramp all or part of the sidewalk ramps down to a street crossing. A turn is required to make a perpendicular crossing. A landing is at street level but within the sidewalk width. Both corner and mid-block parallel ramps are shown on the following page.



Dual Parallel Ramps on a Corner



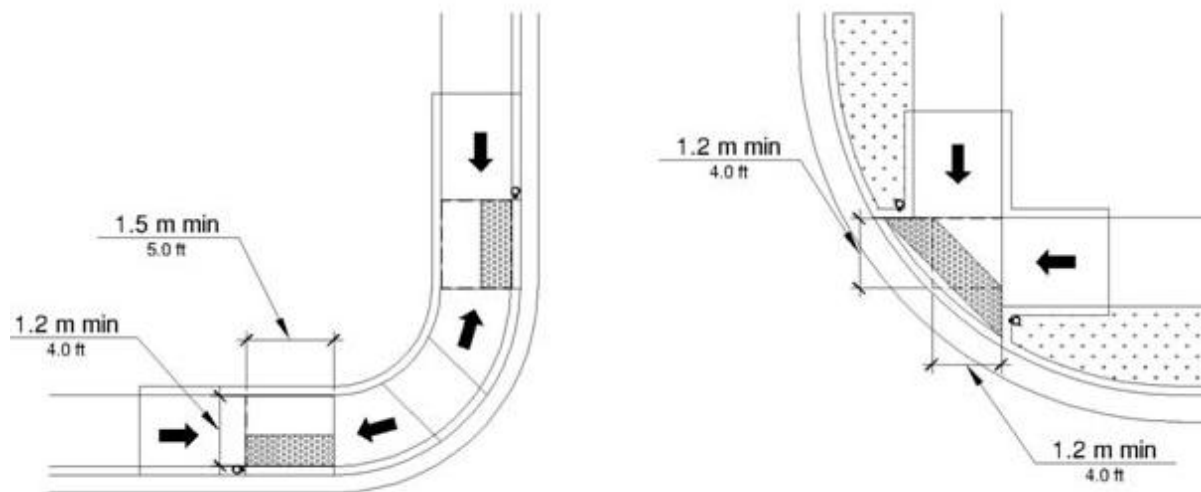
Parallel Ramps within a Sidewalk

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R304.3 Parallel Curb Ramps. Parallel curb ramps shall comply with R304.3 and R304.5.

R304.3.1 Turning Space. A turning space 1.2 m (4.0 ft) minimum by 1.2 m (4.0 ft) minimum shall be provided at the bottom of the curb ramp and shall be permitted to overlap other turning spaces and clear spaces. If the turning space is constrained on 2 or more sides, the turning space shall be 1.2 m (4.0 ft) minimum by 1.5 m (5.0 ft). The 1.5 m (5.0 ft) dimension shall be provided in the direction of the pedestrian street crossing.

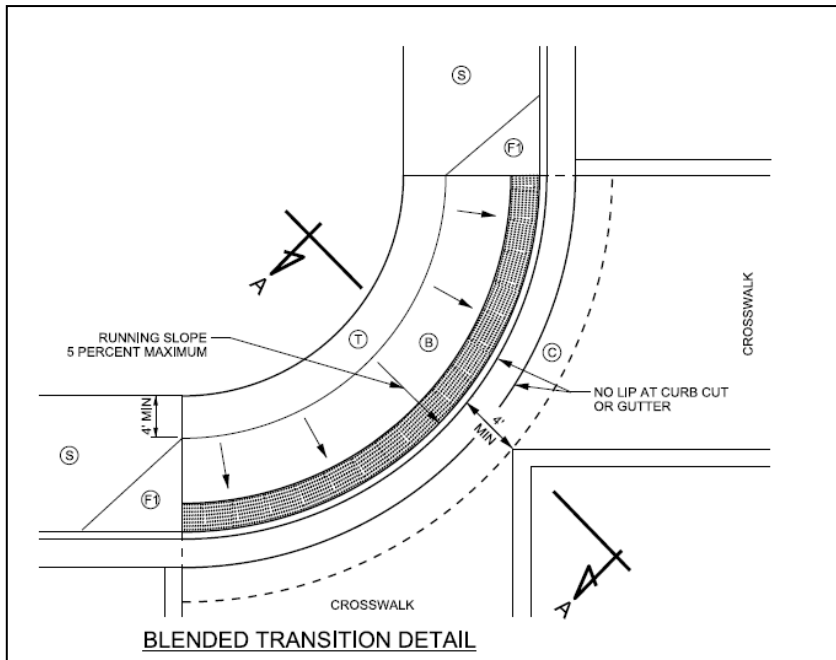
Figure R304.3.1 Turning Space



R304.3.2 Running Slope. The running slope of the curb ramp shall be in-line with the direction of sidewalk travel. The running slope of the curb ramp shall be 5 percent minimum and 8.3 percent maximum but shall not require the ramp length to exceed 4.5 m (15.0 ft) minimum. The running slope of the turning space shall be 2 percent maximum.

Blended Transition

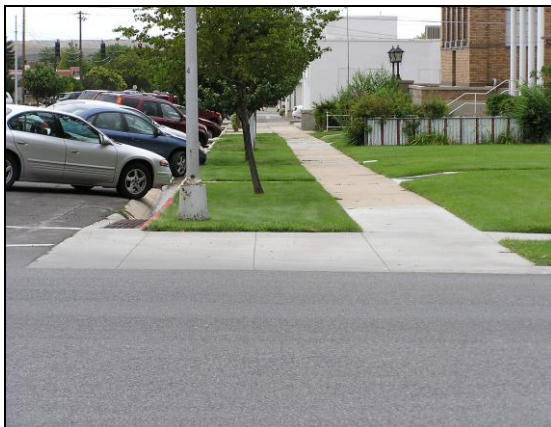
A blended transition is a connection between the pedestrian access route at the level of the sidewalk and the level of the pedestrian street crossing that has a grade of 5% or less. Blended transitions around a corner without a turning space should only be constructed when technical infeasibility prevents the installation of a turning space.



Blended Transition on a Corner



Blended Transition Ramps



Blended Transition Ramp Missing a Proper Detectable Warning Surface



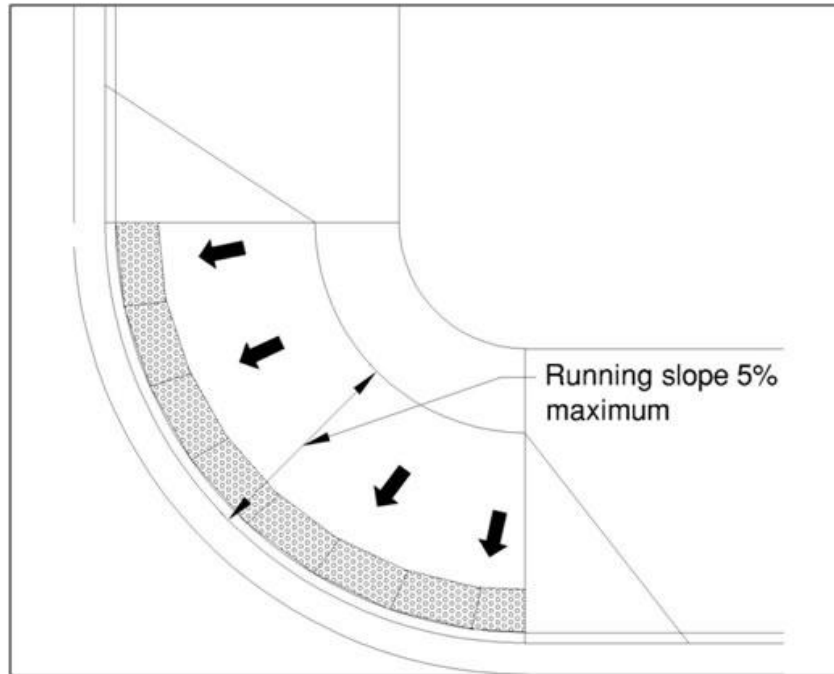
Directional Blended Transition Ramp

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R304.4 Blended Transitions. Blended transitions shall comply with R304.4 and R304.5.

R304.4.1 Running Slope. The running slope of blended transitions shall be 5 percent maximum.

Figure R304.4.1 Running Slope



Apex Access

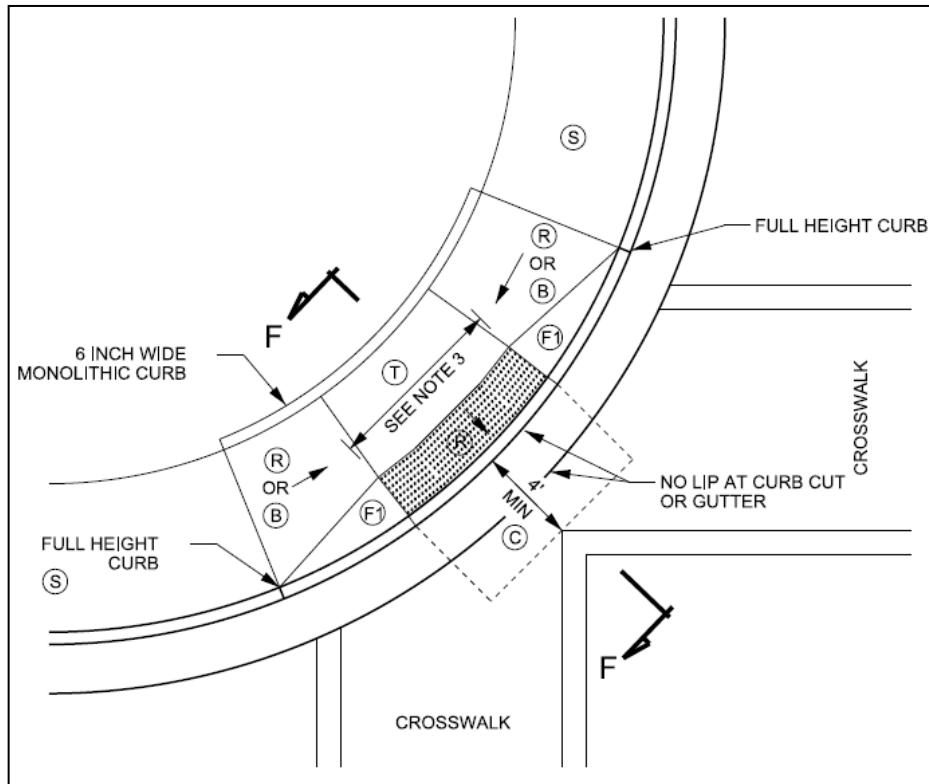
An apex access curb ramp is located at the midpoint or apex of the curb radius or return and serves two crossing directions with a single cut. ***This type of ramp is strongly discouraged by the U.S. Access Board and will only be allowed upon approval of the Region Traffic Engineer.*** Users are forced over flares and a landing is rarely provided.



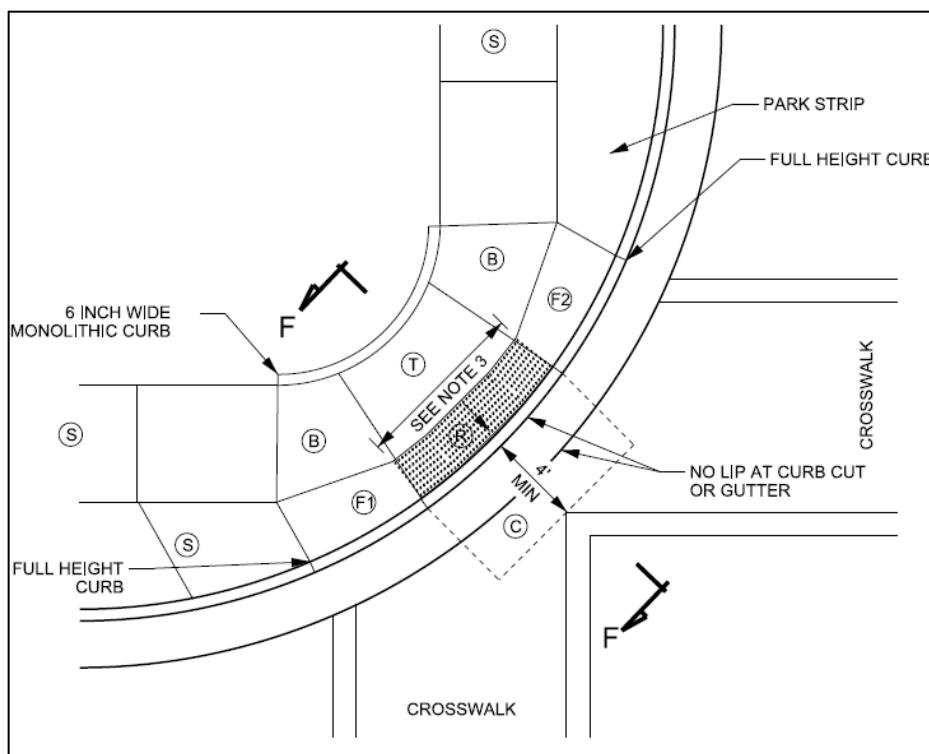
Perpendicular Ramp at Apex of Corner

Combined Ramp

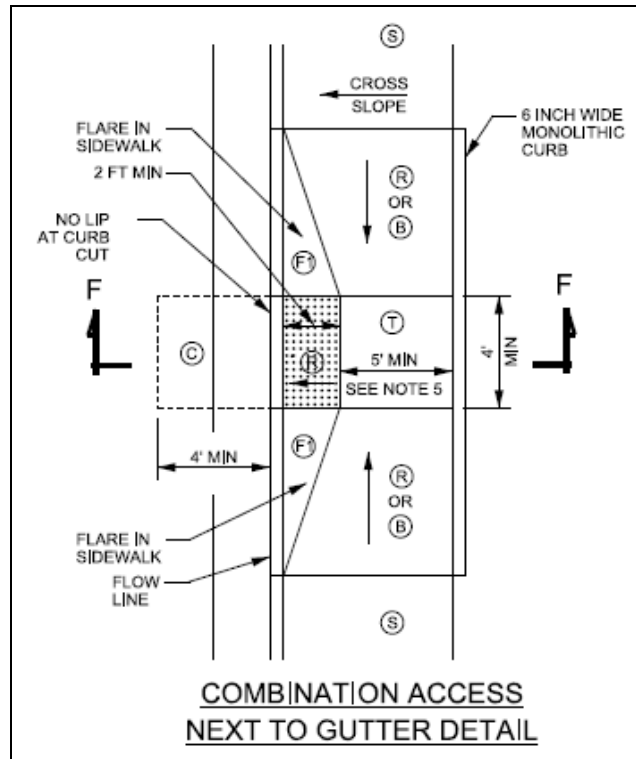
On a combined ramp, the sidewalk ramps down to a landing at a lesser curb height, thus allowing a shorter perpendicular run to connect to the street. These are useful in places there are little or narrow park strips.



Combination Access at Apex of Corner for Bi-Directional Crosswalk next to Gutter



Combination Access at Apex of Corner for Bi-Directional Crosswalk with Park Strip or Wide Sidewalk Diagram



Combined Ramp Next to Gutter



Combination Access on a Corner



Combination Access at Mid-Block

8. Detectable Warning Surface

A detectable warning surface is necessary any place that the curb is absent. It provides a tactile clue that is detectable by cane or underfoot at the boundary between pedestrian and vehicle routes.

In the past there have been many different types of detectable warning surfaces, including scored lines and imprinted mesh. Now, however, the only acceptable detectable warning is the square grid truncated dome pattern.

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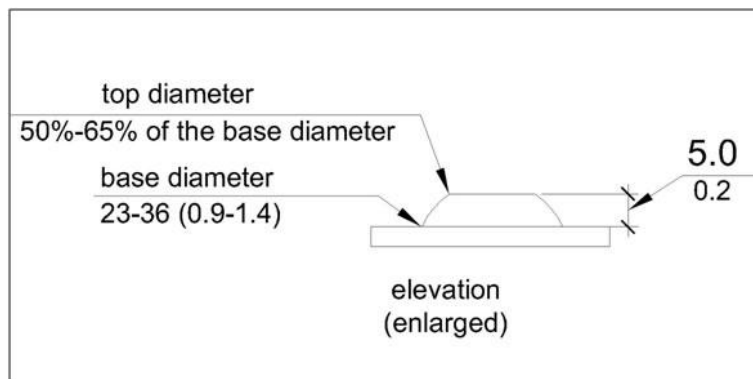
R305 Detectable Warning Surfaces

R305.1 General. Detectable warning surfaces shall consist of truncated domes aligned in a square or radial grid pattern and shall comply with R305.

Advisory R305.1 Dome Size. Where the truncated domes are arrayed radially, they may differ in diameter and center-to-center spacing within the ranges specified in R305.1.1 and R305.1.2.

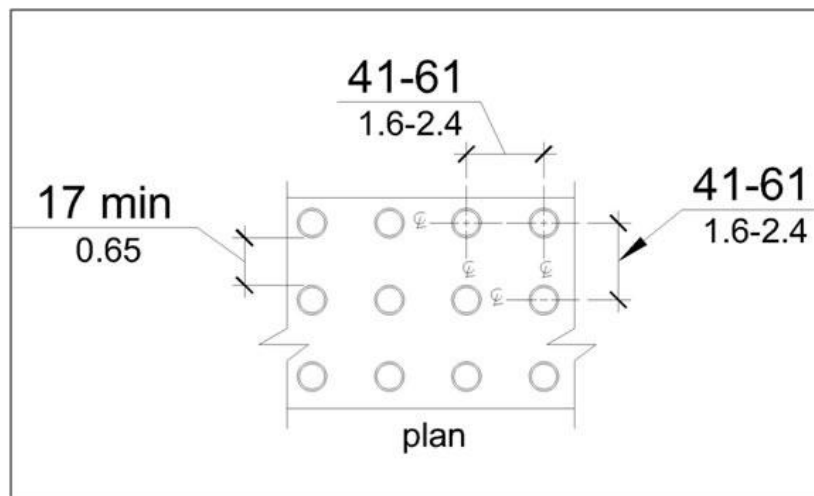
R305.1.1 Dome Size. The truncated domes shall have a base diameter of 23 mm (0.9 in) minimum and 36 mm (1.4 in) maximum, a top diameter of 50 percent of the base diameter minimum and 65 percent of the base diameter maximum, and a height of 5 mm (0.2 in).

Figure R305.1.1 Dome Size



R305.1.2 Dome Spacing. The truncated domes shall have a center-to-center spacing of 41 mm (1.6 in) minimum and 61 mm (2.4 in) maximum, and a base-to-base spacing of 17 mm (0.65 in) minimum, measured between the most adjacent domes.

Figure R305.1.2 Dome Spacing



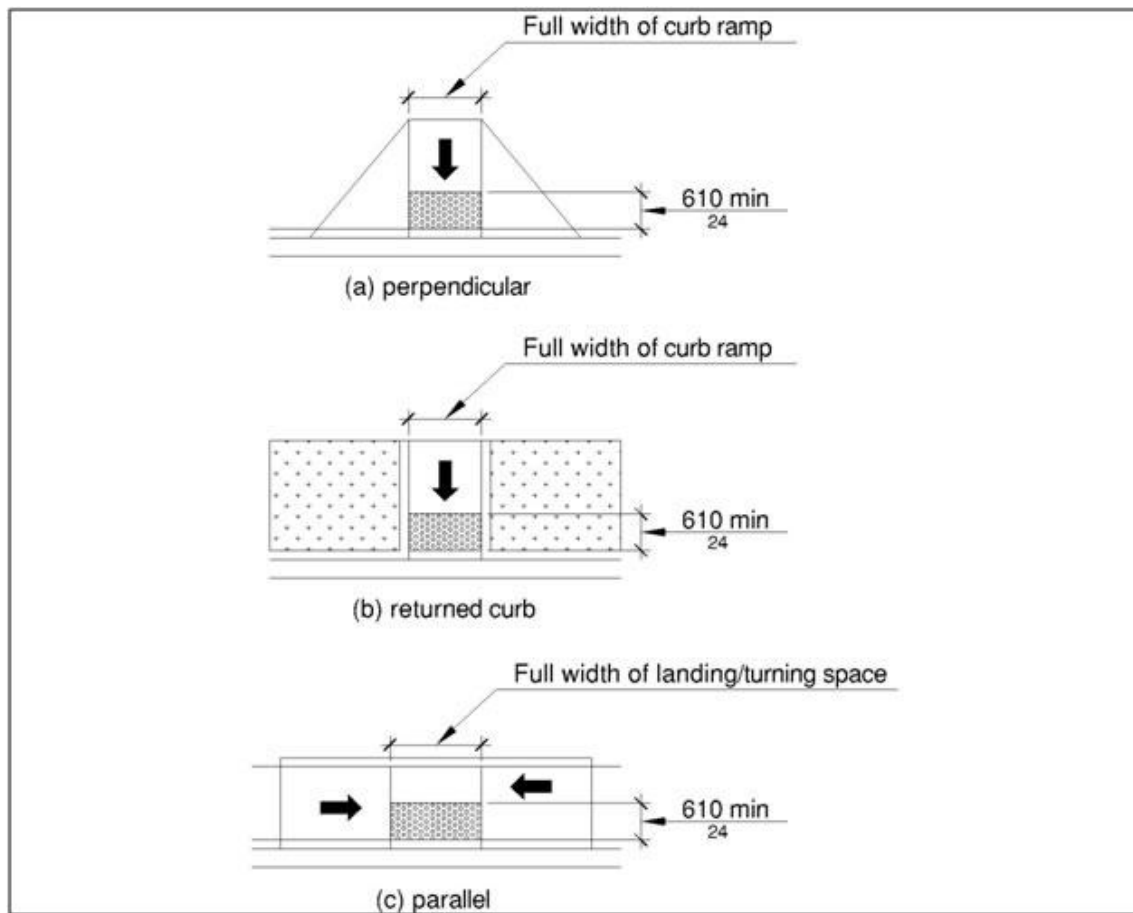
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R305.1.3 Contrast. Detectable warning surfaces shall contrast visually with adjacent gutter, street or highway, or pedestrian access route surface, either light-on-dark or dark-on-light.

Advisory R305.1.3 Contrast. Visual contrast may be provided on the full surface of the curb ramp but should not extend to flared sides. Visual contrast also helps pedestrians who use wheelchairs to locate the curb ramp from the other side of the street.

R305.1.4 Size. Detectable warning surfaces shall extend 610 mm (2.0 ft) minimum in the direction of pedestrian travel. At curb ramps and blended transitions, detectable warning surfaces shall extend the full width of the ramp run (excluding any flared sides), blended transition, or turning space. At pedestrian at-grade rail crossings not located within a street or highway, detectable warnings shall extend the full width of the crossing. At boarding platforms for buses and rail vehicles, detectable warning surfaces shall extend the full length of the public use areas of the platform. At boarding and alighting areas at sidewalk or street level transit stops for rail vehicles, detectable warning surfaces shall extend the full length of the transit stop.

Figure R305.1.4 Size



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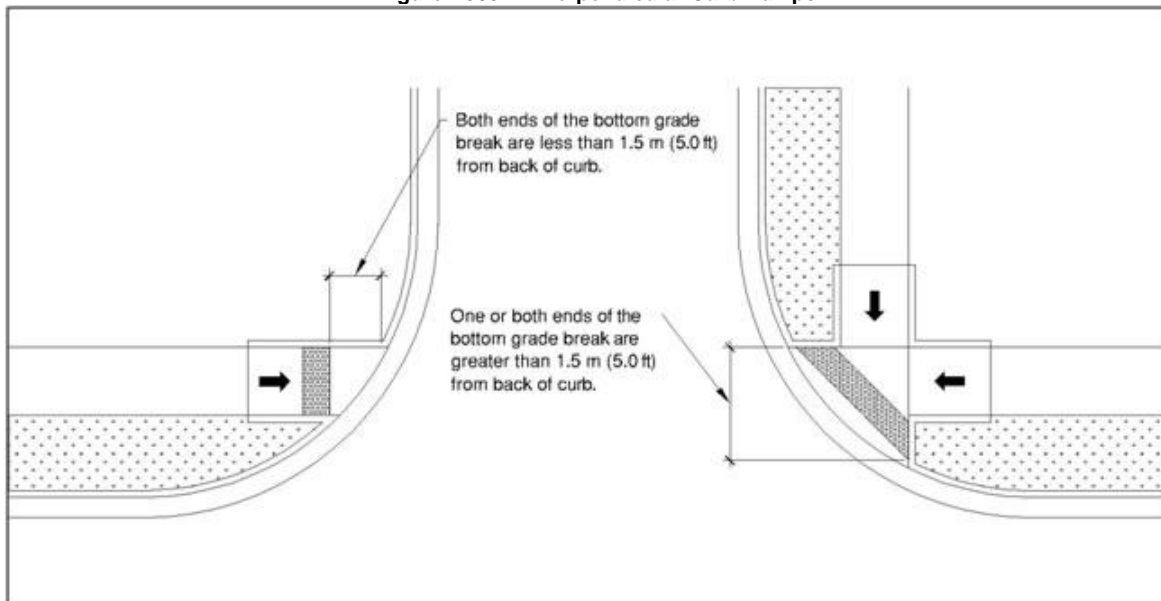
R305.2 Placement. The placement of detectable warning surfaces shall comply with R305.2.

Advisory R305.2 Placement. Some detectable warning products require a concrete border for proper installation. The concrete border should not exceed 51 mm (2 in). Where the back of curb edge is tooled to provide a radius, the border dimension should be measured from the end of the radius.

R305.2.1 Perpendicular Curb Ramps. On perpendicular curb ramps, detectable warning surfaces shall be placed as follows:

1. Where the ends of the bottom grade break are in front of the back of curb, detectable warning surfaces shall be placed at the back of curb.
2. Where the ends of the bottom grade break are behind the back of curb and the distance from either end of the bottom grade brake to the back of curb is 1.5 m (5.0 ft) or less, detectable warning surfaces shall be placed on the ramp run within one dome spacing of the bottom grade break.
3. Where the ends of the bottom grade break are behind the back of curb and the distance from either end of the bottom grade brake to the back of curb is more than 1.5 m (5.0 ft), detectable warning surfaces shall be placed on the lower landing at the back of curb.

Figure R305.2.1 Perpendicular Curb Ramps

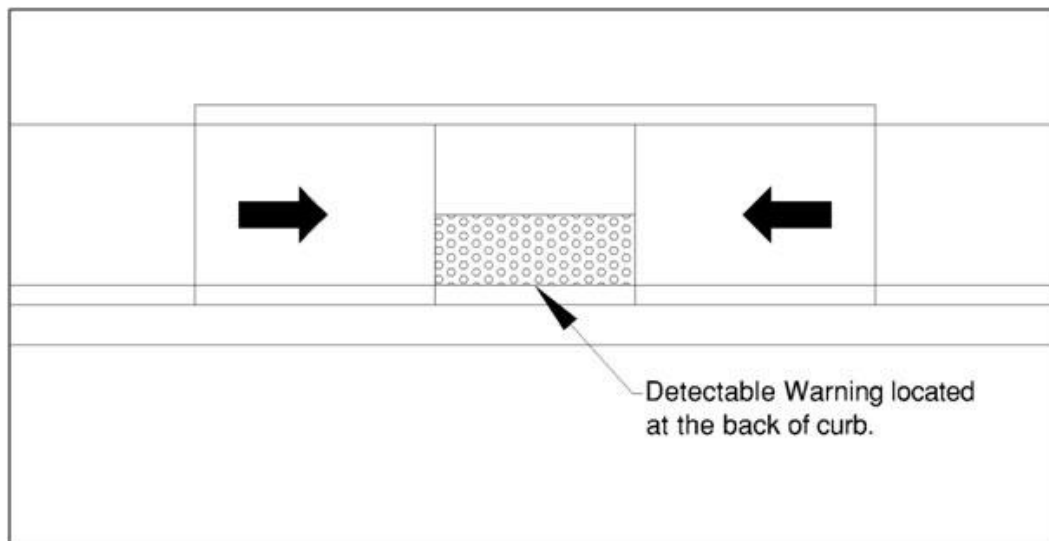


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Advisory R305.2.1 Perpendicular Curb Ramps. Detectable warning surfaces are intended to provide a tactile equivalent underfoot of the visible curb line. If detectable warning surfaces are placed too far from the curb line because of a large curb radius, the location may compromise effective crossing. Detectable warning surfaces should not be placed on paving or expansion joints. The rows of truncated domes in detectable warning surfaces should be aligned perpendicular to the grade break between the ramp run and the street so pedestrians who use wheelchairs can “track” between the domes. Where detectable warning surfaces are provided on a surface with a slope that is less than 5 percent, dome orientation is less critical.

R305.2.2 Parallel Curb Ramps. On parallel curb ramps, detectable warning surfaces shall be placed on the turning space at the flush transition between the street and sidewalk.

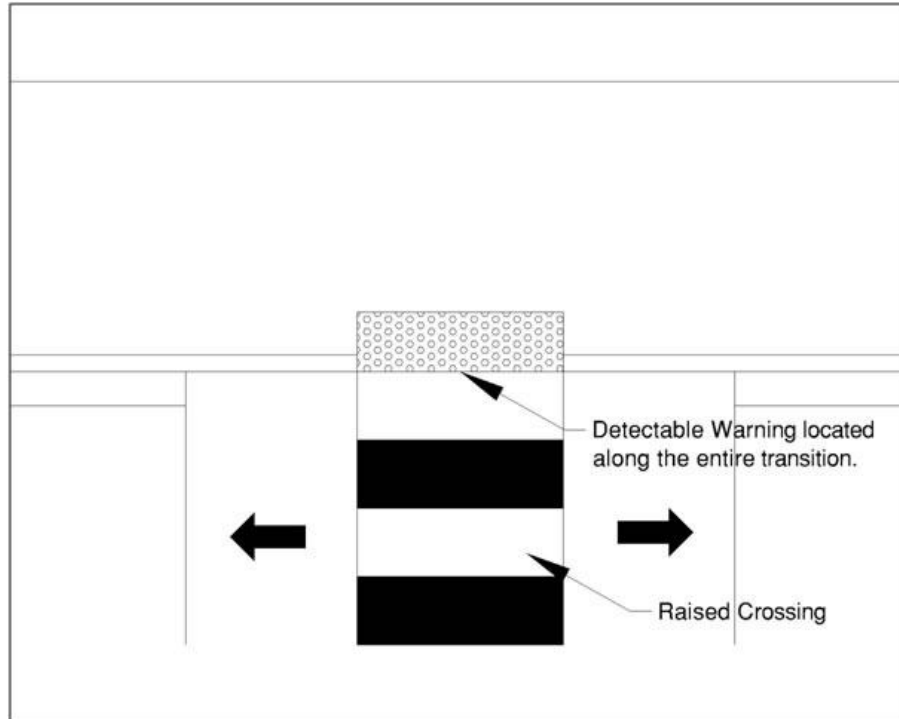
Figure R305.2.2 Parallel Curb Ramps



R305.2.3 Blended Transitions. On blended transitions, detectable warning surfaces shall be placed at the back of curb. Where raised pedestrian street crossings, depressed corners, or other level pedestrian street crossings are provided, detectable warning surfaces shall be placed at the flush transition between the street and the sidewalk.

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Figure R305.2.3 Blended Transitions

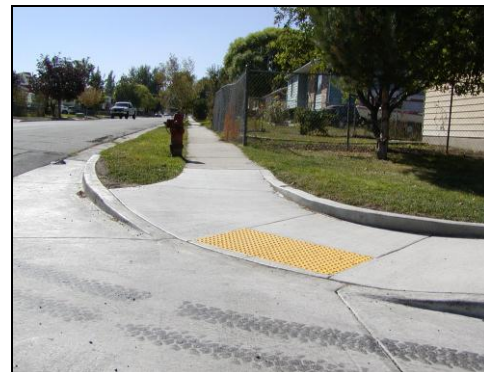


Acceptable detectable warning materials are listed in Standard Specification 02771M. They include polymer composite panels and concrete composite panels. Stamped concrete is not acceptable because it is impossible to create consistency in the domes and the domes tend to be less durable. Stamped concrete examples are shown below.



Before the GW 5 Series Standard Drawings were passed in August 2004, there were several revisions in the guidance given on the installation of the detectable warnings, specifically the truncated dome panels. The GW 5 Series Drawings now show the correct installation.

The detectable warning surface must be provided for the entire width of the curb cut for a depth of two feet for the entire length. They must also be located so that the edge nearest the street at the back of curb. Good examples of this are shown below.



Detectable Warning Surface Problems and Solutions

The edge nearest the street must be at the back of curb.



Problem:

Small radius makes achieving edge orientation difficult.

Possible Solutions:

Best: Install two perpendicular ramps at the corner rather than one diagonal.

Problem:

Small radius makes achieving 6 to 8 inch edge orientation.

Possible Solutions:

Best: Install two perpendicular ramps at the corner rather than one diagonal.



Problem:

Ramp does not meet curb at right angles making correct orientation difficult.



Possible Solutions:

Orient detectable warning surface parallel to the curb line. Piece the panel if necessary to maintain 24 inch depth in direction of pedestrian travel.

Detectable warning surfaces must extend 24 inches minimum in the direction of travel and the full width of the curb ramp, landing or blended transition.



Problem:

Triangular sections provide guidance, but violate 24 inch depth requirement.



Possible Solutions:

Provide 24 inch depth. Leave truncated dome panels square if possible.

9. Islands

At any time a pedestrian crossing crosses a median or island, it must meet ADA requirements even if reconstruction is necessary.

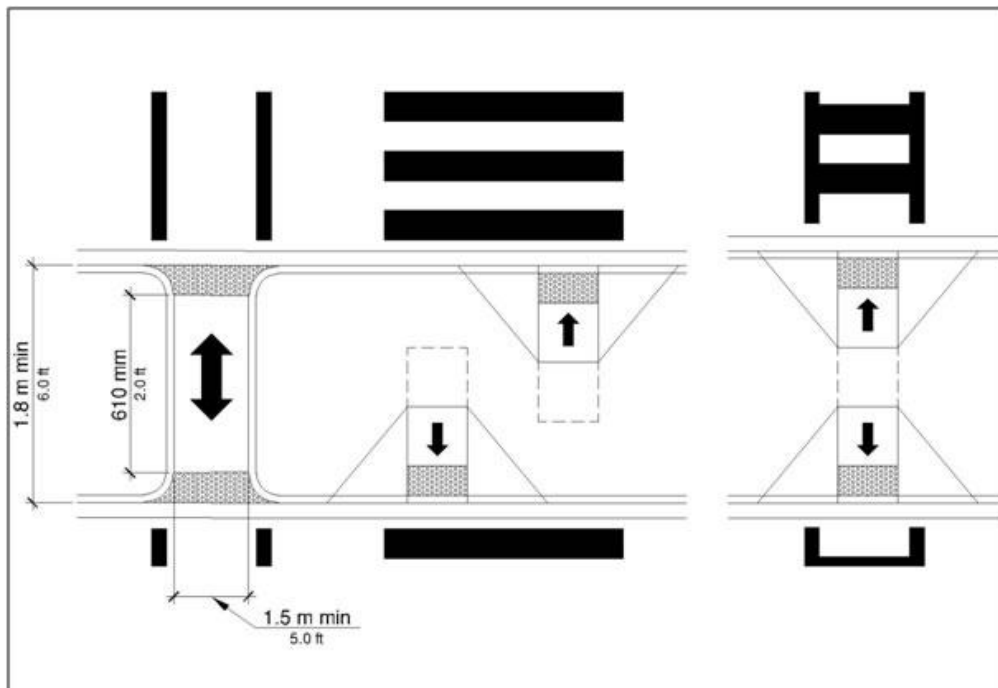
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R204.3 Pedestrian Street Crossings. A pedestrian access route shall be provided within pedestrian street crossings, including medians and pedestrian refuge islands, and pedestrian at-grade rail crossings. The pedestrian access route shall connect departure and arrival sidewalks.

R302.3.1 Medians and Pedestrian Refuge Islands. The clear width of pedestrian access routes within medians and pedestrian refuge islands shall be 1.5 m (5.0 ft) minimum.

R305.2.4 Pedestrian Refuge Islands. At cut-through pedestrian refuge islands, detectable warning surfaces shall be placed at the edges of the pedestrian island and shall be separated by a 610 mm (2.0 ft) minimum length of surface without detectable warnings.

Figure R 305.2.4 Pedestrian Refuge Island

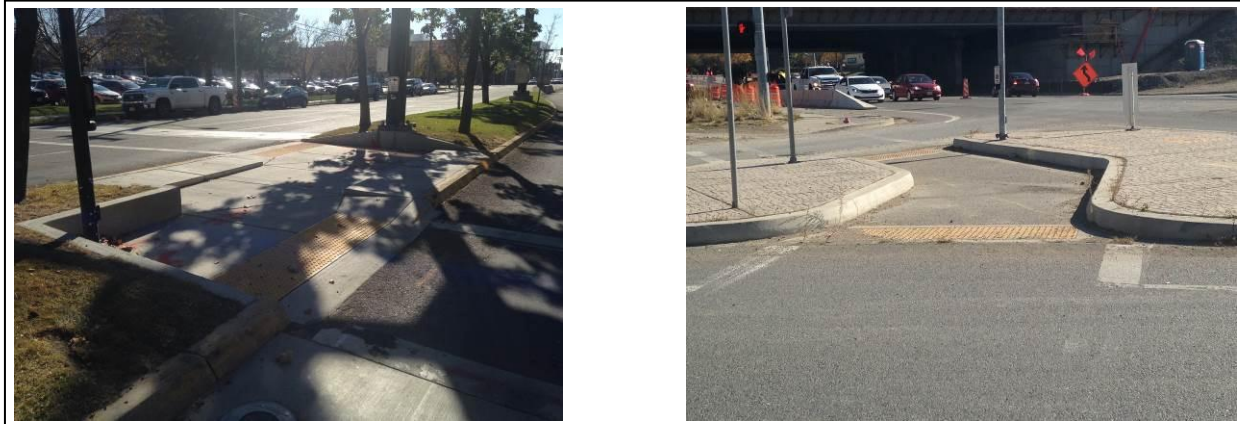


Advisory R305.2.4 Pedestrian Refuge Islands. The edges of cut-through pedestrian refuge islands can provide useful cues to the direction of the crossing.

R208.2 Where Not Required. Detectable warning surfaces are not required at pedestrian refuge islands that are cut-through at street level and are less than 1.8 meters (6.0 ft) in length in the direction of pedestrian travel.

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Advisory R208.2 Where Not Required. Detectable warning surfaces are not required at cut-through pedestrian refuge islands that are less than 1.8 meters (6.0 ft) in length because detectable warning surfaces must extend 610 millimeters (2.0 ft) minimum on each side of the island and be separated by 610 millimeters (2.0 ft) minimum length of island without detectable warning surfaces (see R305.1.4 and R305.2.4). Installing detectable warning surfaces at cut-through pedestrian islands that are less than 1.8 meters (6.0 ft) in length would compromise the effectiveness of detectable warning surfaces. Where a cut-through pedestrian refuge island is less than 1.8 m (6.0 ft) in length and the pedestrian street crossing is signalized, the signal should be timed for a complete crossing of the street.



Pedestrian Refuge Islands

10. Ramp Measurement

In order to ensure consistency throughout each ramp it is necessary to maintain a consistent and dependable measuring procedure. Ramps should be measured across the running slope or cross slope as shown in the GW Drawings.

A 4-foot level will be used when the surface to be measured is 48 inches or greater however when measuring a surface less than 48 inches, a 2-foot level may be used. Use of a calibrated digital level is required; however every level has inherent error which should be taken into consideration. For example, when laying out a ramp that the maximum slope is 2% and that the level has an accuracy of + or – 0.2% then it would be best to plan ahead and design the ramp to be 1.8% so as to account for that possible additional +0.2% inaccuracy. Make sure to maintain proper alignment of the level when measuring, as inappropriate angles can cause slope readings to become skewed and inaccurate. Follow proper calibration methods for devices every time they are used to ensure the most accurate readings possible.

11. Ramp Evaluation Form

In order to keep UDOT's transition plan up to date documentation of changes to every ramp must be submitted to the Division of Traffic and Safety. A Pedestrian Access Evaluation Form, located in Appendix I, has been created to make documentation easier. Please read this section carefully in order to measure and record the pedestrian access characteristics accurately.

Documentation

Each copy of the form can be used for one corner or one mid-block location and up to four of each of following pedestrian access elements:

- Ramp (R)
- Blended Transition (B)
- Turning Space (T)
- Flare in Sidewalk (F1)
- Flare not in Sidewalk (F2)

There is room to record two of the following elements:

- Curb Cut Width
- Clear Space/Gutter (C)
- Detectable Warning Surface (DWS)
- Crosswalk
- Island

If the number of any pedestrian access elements exceeds the number of spaces, a second form should be used for the extra information. Enter **None** or **Zero (0)** for spaces not used on form.

Inventory Fields

Inventory Information

Inspector Name:

Enter the name(s) of person(s) completing the pedestrian access evaluation

Project Name:

Enter the project name, the maintenance or permit activity

Date Evaluated:

Enter the date of the pedestrian access evaluation. This is necessary for documentation.

Location Fields

Intersection or Crossing Information

TS_ID:

The TS_ID is a number automatically assigned by the database. Please leave this **field blank** on the form.

Primary Street (SR):

Enter the primary state route on which the pedestrian access is located. Be as specific as possible by including both the route number and street name (if any). For example: *US 89 (State Street)*.

Cross Street:

This field is provided for the cross street name. Be as specific as possible by including both the street number and street name. For example: *8225 West (Rulon Street)*. At a mid-block crossing, enter the address of the crossing since there is no cross street.

City:

Enter the city in which the pedestrian access is located. If not within a city's limits, enter the word COUNTY.

County:

Enter the county in which the pedestrian access is located.

Corner or Midblock

The two types of location for pedestrian access are **Corner** or **Midblock**.

Examples of Corner ramps are shown on the UDOT GW 5B, GW 5C and GW 5D Standard Drawings as well as in the photos below.



Corner Ramp Example

Examples of Mid-block ramps are shown on the UDOT GW 5A Standard Drawing as well as in the photos below.



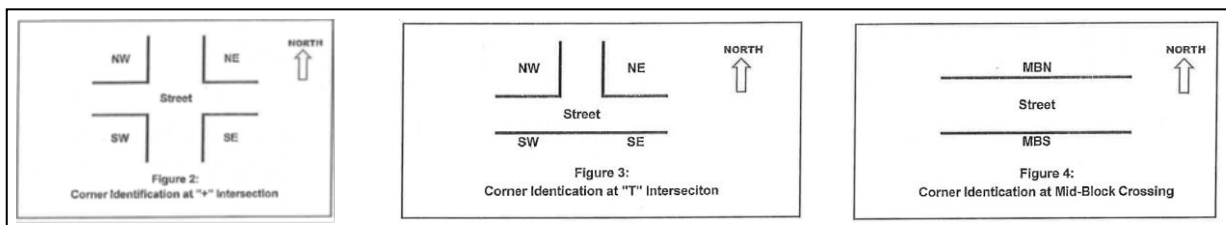
Mid-block Ramp Example

The GW 5 Series Standard Drawings are located at:
<http://www.udot.utah.gov/main/f?p=100:pg:0:::1:T,V:302>

- If the pedestrian access is at a Corner use one of the codes (NW, NE, SW, SE, N, S, E, W).
- If the pedestrian access is not at a Corner use one of the Midblock codes (MN, MS, ME, MW, MNW, MNE, MSW, MSE).

Use only one code (Corner [NW, NE, SW, SE, N, S, E, W] or Midblock [MN, MS, ME, MW, MNW, MNE, MSW, MSE]) that best describes the pedestrian access location, where N=North, S=South, E=East, W=West, and M=Mid-block.

See the figures below as well as the back of the form for orientation layouts.



Orientation Layouts

Element/Criterion Heading

For each Element there is a Criterion column and either four or two sets of columns to document the element's value and whether the value is **Pass/Fail** for the Criterion.

Enter the measured value for each element (if present) under the four columns **1, 2, 3, or 4**. Enter a **P** for **Pass** or **F** for **Fail** in the box to the right of each recorded value.

Sidewalk Fields

Sidewalk (S) and Pedestrian Access Route (PAR) Information

Pedestrian Access Route (PAR) Width

Requirement: Pedestrian Access Route Width ≥ 4 feet. This field is for the Pedestrian Access Route Width in the vicinity of pedestrian access and/or for sidewalk runs.

Enter the Pedestrian Access Route Width and whether it passes or fails the 4 feet minimum width requirement for each Pedestrian Access Route present.

Sidewalk Cross Slope

Requirement: Sidewalk Cross Slope $\leq 2\%$. This field is for the Sidewalk Cross Slope in the vicinity of pedestrian access and/or for sidewalk runs.

Enter the Sidewalk Cross Slope and whether it passes or fails the $\leq 2\%$ requirement for each Sidewalk present.

Sidewalk Passing Area (Provide 5'x5', ≤ 200 ft. spacing)

Requirement: A 5 foot x 5 foot hard surface area on sidewalks that are less than 5 feet wide when there is not a hard surface passing area of 5 feet minimum width in a 200 foot segment.

Enter whether there is a 5 foot by 5 foot passing area spaced ≤ 200 feet and it passes or fails for each (up to four) 200 foot sections present.

Ramp and Blended Transitions Fields

Ramp (R) Information

Ramp Type

Requirement: Identify each ramp as a Parallel, Perpendicular, Parallel-Combination (Para-Comb) or Perpendicular-Combination (Perp-Comb) ramp. If it is a Combination ramp, evaluate each ramp (Parallel or Perpendicular) separately.

Enter one of the following options for each ramp present (up to four):

- **Parallel** Use if the Parallel ramp **doesn't share** a Turning Space (T) with another Ramp (R) or Blended Transition (B).
- **Perpendicular** Use if the Perpendicular ramp **doesn't share** a Turning Space (T) with another Ramp (R) or Blended Transition (B).
- **Para-Comb** Use if the Parallel ramp **shares** a Turning Space (T) with another Ramp (R) or Blended Transition (B).
- **Perp-Comb** Use if the Perpendicular ramp **shares** a Turning Space (T) with another Ramp (R) or Blended Transition (B).

Ramp Running Slope

Requirement: Ramp Running Slope (RS) of $5.1\% \leq RS \leq 8.3\%$. Conforming Ramp Running Slopes are not required to exceed 15 feet nearest the road.

Enter the Ramp Running Slope and whether it passes or fails the $5.1\% \leq RS \leq 8.3\%$ requirement for each ramp present (up to four).

Ramp Cross Slope

Requirement: The criterion for the Ramp Cross Slope is located at the bottom of the form as shown below. The required cross slope depends whether the ramp serves a crosswalk controlled by Stop or Yield control (sign) or at midblock. Neither a traffic signal nor a Pedestrian Hybrid Beacon is STOP control.

The “**Not Controlled by STOP or YIELD Sign** $\leq 5\%$ ” doesn't apply to Ramp (R).

*Cross Slope of (R), (B), (T) or (C) that serves a crosswalk:	Criterion
Controlled by STOP or YIELD Sign	$\leq 2\%$
Not Controlled by STOP or YIELD Sign	$\leq \text{Rd Grade}$
Midblock	$\leq \text{Rd Grade}$

Enter the Ramp Cross Slope and whether it passes or fails for each ramp present (up to four).

Ramp Grade Breaks

Requirement: Grade Breaks are perpendicular to the direction of pedestrian travel and are at the ends of each ramp. No Grade Breaks allowed on the ramp.

Enter whether the Ramp Grade Breaks are perpendicular to the direction of pedestrian travel and are at the ends of each ramp and whether it passes or fails for each ramp present (up to four).

Blended Transition (B) Information

Blended Transition Type

This field is for the Blended Transition Type, if present. If there is a Blended Transition(s) at this location, enter one of the following options for each ramp present (up to four):

- **Blended Transition (BT)** Use if the Blended Transition (B) **isn't** used in combination with a Ramp (R).
- **Blended Transition Combination (BT-Comb)** Use if the Blended Transition **is** used in combination with a Ramp (R).

Blended Transition Running Slope

Requirement: Blended Transition Running Slope $RS \leq 5\%$.

Enter the Blended Transition Running Slope and whether it passes or fails the $\leq 5\%$ requirement for each ramp present (up to four).

Blended Transition Cross Slope

Requirement: The criterion for the Blended Transition Cross Slope is located at the bottom of the form as shown below. The required Cross Slope depends whether the Blended Transition serves a crosswalk controlled by Stop or Yield control (sign) or at midblock. Neither a traffic signal nor a Pedestrian Hybrid Beacon is STOP control.

The “**Not Controlled by STOP or YIELD Sign** $\leq 5\%$ ” doesn't apply to Blend Transition (B).

*Cross Slope of (R), (B), (T) or (C) that serves a crosswalk:	Criterion
Controlled by STOP or YIELD Sign	$\leq 2\%$
Not Controlled by STOP or YIELD Sign	$\leq \text{Rd Grade}$
Midblock	$\leq \text{Rd Grade}$

Enter the Blend Transition Cross Slope and whether it passes or fails for each Blended Transition present (up to four).

Turning Space (T) Information

Turning Space Width

Requirement: Turning Space Width is the larger of the curb cut width or 4 foot minimum.

Enter the Turning Space Width and whether it passes or fails for each Turning Space present (up to four).

Turning Space Depth

Requirement: The Turning Space Depth depends on whether Turning Space is unconstrained or constrained. A Turning Space is considered constrained when there is a barrier, such as a curb, on the rear of a Perpendicular ramp or on 2 or more of the sides of a Parallel ramp. The Turning Space Depth for unconstrained is 4 feet minimum and for constrained is 5 feet minimum.

Enter the Turning Space Depth and whether it passes or fails for each Turning Space present (up to four).

Turning Space Running Slope

Requirement: Turning Space Running Slope $\leq 2\%$.

Enter the Turning Space Running Slope and whether it passes or fails the $\leq 2\%$ requirement for each Turning Space present (up to four).

Turning Space Cross Slope

Requirement: The criterion for the Turning Space Cross Slope is located at the bottom of the form as shown below. The required cross slope depends whether the Turning Space serves a crosswalk controlled by Stop or Yield control (sign) or at midblock. Neither a traffic signal nor a Pedestrian Hybrid Beacon is STOP control.

The “^Not Controlled by STOP or YIELD Sign $\leq 5\%$ ” doesn’t apply to a Turning Space (T).

*Cross Slope of (R), (B), (T) or (C) that serves a crosswalk:	Criterion
Controlled by STOP or YIELD Sign	$\leq 2\%$
Not Controlled by STOP or YIELD Sign	$\leq \text{Rd Grade}$
Midblock	$\leq \text{Rd Grade}$

Enter the Turning Space Cross Slope and whether it passes or fails for each Turning Space present (up to four).

Flare: In Sidewalk (F1) Slope and Not in Sidewalk (F2) Slope

Measure each flare parallel to the curb line.

Flare In Sidewalk (F1) Slope

Requirement: Flare In Sidewalk (F1) Slope $\leq 10\%$.

Enter the In Sidewalk (F1) Slope and whether it passes or fails the $\leq 10\%$ requirement for each Flare In Sidewalk (F1) Slope present (up to four).

Flare Not in Sidewalk (F2) Slope

Requirement: Flare Not In Sidewalk (F2) slope $\leq 25\%$.

Enter the Not in Sidewalk (F2) Slope and whether it passes or fails the $\leq 25\%$ requirement for each Flare Not in Sidewalk (F2) Slope present (up to four).

Curb Cut Width Field

Curb Cut Width

Curb Cut Width

Requirement: Curb Cut Width is:

- 4 feet minimum for single direction **or**
- 8 feet minimum for bi-direction

Enter the Curb Cut Width and whether it passes or fails the 4 feet minimum for single direction or 8 feet minimum for bi-direction requirement for each curb cut present (up to two).

Clear Space/Gutter Fields

Clear Space/Gutter (C) Information

Clear Space/Gutter Lip at Curb Cut or at Gutter and Road

Requirement: **No** Lip is allowed at the Curb Cut or the interface between the Gutter and Road pavement.

For the flow line, it is considered to have a lip if the drop off is greater than a 1/4 inch. For the gutter to road pavement, it is considered to have a lip if the drop off is greater than 1/2 inch.

Enter whether there is a lip at either location and whether it passes or fails for each Clear Space/Gutter present (up to two).

Clear Space/Gutter Size

Requirement: Clear Space Size is the largest of curb cut width or 4 feet minimum width by 4 feet minimum depth.

Enter the Clear Space Size and whether it passes or fails the largest of curb cut width or 4 feet minimum width by 4 feet minimum depth requirement for each curb cut present (up to two).

Clear Space/Gutter within crosswalk and outside the parallel vehicle traffic lane

Requirement: A Clear Space is provided beyond the bottom of the grade break that is within the width of the crosswalk and wholly outside the parallel vehicle traffic lane.

Enter whether the Clear Space is within the width of the crosswalk and wholly outside the parallel vehicle traffic lane and whether it passes or fails for each Detectable Warning Surface present (up to two).

Clear Space/Gutter Running Slope

Requirement: Clear Space/Gutter Running Slope $\leq 5\%$.

Enter the Clear Space/Gutter Running Slope and whether it passes or fails the $\leq 5\%$ requirement for each Clear Space/Gutter present (up to two).

Clear Space/Gutter Cross Slope

Requirement: The criterion for the Clear Space/Gutter Cross Slope is located at the bottom of the form as shown below. The required cross slope depends whether the Clear Space/Gutter serves a crosswalk controlled by Stop or Yield control (sign) or at midblock. Neither a traffic signal nor a Pedestrian Hybrid Beacon is STOP control.

The “**Not Controlled by STOP or YIELD Sign** \leq Rd Grade” doesn’t apply to the Clear Space/Gutter (C).

*Cross Slope of (R), (B), (T) or (C) that serves a crosswalk:	Criterion
Controlled by STOP or YIELD Sign	≤2%
^Not Controlled by STOP or YIELD Sign	≤5%
Midblock	≤Rd Grade

Enter the Clear Space/Gutter Cross Slope and whether it passes or fails for each Clear Space/Gutter present (up to two).

Detectable Warning Surface Fields

Detectable Warning Surface (DWS) Information

Detectable Warning Surface Type

Requirement: Detectable Warning Surface Types are: Polymer, Precast Concrete and Cast Iron

Enter the Detectable Warning Surface Type and whether it passes or fails as being an acceptable type (Polymer, Precast Concrete or Cast Iron) for each Detectable Warning Surface present (up to two).

Detectable Warning Surface Spans Full Width of Curb Cut (Excluding Flares)

Requirement: The Detectable Warning Surface spans the full width of curb cut and not on any flares.

Enter whether the Detectable Warning Surface spans the full width of curb cut only (excluding flares) and it passes or fails for each Detectable Warning Surface present (up to two).

Detectable Warning Surface Depth in Direction of Pedestrian Travel

Requirement: Detectable Warning Surface Depth the in Direction of Pedestrian Travel ≥2 feet.

Enter the Detectable Warning Surface Depth the in Direction of Pedestrian Travel and whether it passes or fails the ≥2 feet requirement for each Detectable Warning Surface present (up to two).

Detectable Warning Surface Color Contrast with Surrounding Surface

Requirement: The Detectable Warning Surface contrasts visually with adjacent gutter, street or highway, or pedestrian access route surface, flares, either light-on-dark or dark-on-light.

Enter whether the Detectable Warning Surface contrasts visually with the adjacent gutter, street or highway, or pedestrian access route surface, flares, either light-on-dark or dark-on-light and whether it passes or fails for each Detectable Warning Surface present (up to two).

Detectable Warning Surface Closest Corner Within 1" from Back of Curb

Requirement: The Detectable Warning Surface's outside corner nearest to the street is within 1 inch of the back of curb.

Enter whether the Detectable Warning Surface's outside corners nearest the street are within 1 inch of the back of curb and whether it passes or fails for each Detectable Warning Surface present (up to two).

Crosswalk Fields

Crosswalk Information

Crosswalk Running Slope

Requirement: Crosswalk Running Slope $\leq 5\%$. If the roadway isn't being constructed or reconstructed as part of scope the project, bringing the Crosswalk Running Slope into compliance isn't required and should be noted in the Comments area.

Enter the Crosswalk Running Slope and whether it passes or fails the $\leq 5\%$ requirement for each Crosswalk present (up to two).

Crosswalk Cross Slope

Requirement: The criterion for the Crosswalk Cross slope is located at the bottom of the form as shown below. The required cross slope depends whether the Crosswalk is controlled by Stop or Yield control (sign) or at midblock location. Neither a traffic signal nor a Pedestrian Hybrid Beacon is STOP control.

The “**Not Controlled by STOP or YIELD Sign \leq Rd Grade**” doesn't apply to the Crosswalks.

*Cross Slope of (R), (B), (T) or (C) that serves a crosswalk:	Criterion
Controlled by STOP or YIELD Sign	$\leq 2\%$
^Not Controlled by STOP or YIELD Sign	$\leq 5\%$
Midblock	\leq Rd Grade

If the roadway isn't being constructed or reconstructed as part of scope the project, bringing the crosswalk cross slope into compliance isn't required and should be noted in the Comments field.

Enter the Crosswalk Cross Slope and whether it passes or fails for each Crosswalk present (up to two).

Island Fields

Island Information

Island Pedestrian Access Route (PAR) Width

Requirement: The Pedestrian Access Route Width through an island is required to be ≥ 5 feet.

Enter whether the Pedestrian Access Route Width through an island is ≥ 5 feet and it passes or fails for each island present (up to two).

Island Pedestrian Access Route (PAR) Length

Requirement: If the Pedestrian Access Route Length through an island *is* ≥ 6 feet than Detectable Warning Surfaces are required. If the Pedestrian Access Route Length through an island *is not* ≥ 6 feet than Detectable Warning Surfaces are prohibited.

Enter whether the presence of Detectable Warning Surface meets the requirements depending on the Pedestrian Access Route Length through an island and it passes or fails for each island present (up to two).

Comment Field

Comment Information

Comments

The Comments text box is provided for recording technical Infeasibilities, special situations or picture numbers with the location.

Special situations include but are not limited to the following:

- *Intersection geometry*
- *Observed pedestrian use (e.g. Figure 50)*
- *Surrounding trip-generating facilities*
- *Hazardous conditions*

For example in the first photo below the housing complex on the left is specifically for people with physical disabilities. This would be important to note in the comments as there is a high possibility that people with disabilities will be using the ramp frequently. Other types of facilities to note would be government buildings, schools, bus stops, shopping areas, etc. The second photo below shows observed ramp use by a person with a disability, also something to note in the comments.



Housing for People with Physical Disabilities



Observed Ramp Use by a Person with a Disability

Enter any of the following:

- Details on any technical Infeasibilities there may be
- Special situations
- Any unusual things about the location or the access itself - document it with digital photos; record the picture number(s) in this field and submit the picture(s) with the Pedestrian Access Evaluation Form.

12. Definitions

Accessible Route: A continuous, unobstructed path connecting all accessible elements and spaces of a building or facility that meets the requirement of ADAAG.

Alteration - Modification made to an existing building or facility that goes beyond normal maintenance activities and affects or could affect usability.

Americans with Disabilities Act Accessibility Guidelines (ADAAG)- Provide scoping and technical specifications for new construction and alterations undertaken by entities covered by the ADA.

Approach - The section of the accessible route that flanks the landing of a curb ramp. The approach may be slightly graded if the landing level is below the elevation of the adjoining sidewalk.

Blended Transition: A connection between the pedestrian access route at the level of the sidewalk and the level of the pedestrian street crossing that has a grade of 5 percent or less. Blended transitions around a corner without a turning space should only be constructed when technical infeasibility prevents the installation of a turning space.

Clear Space in Crosswalk - The additional space required to be included in a crosswalk at the corner where the ramp of a diagonal curb ramp meets the street so that those entering or exiting the base of the ramp can remain within the crosswalk.

Combination Ramp: A ramp using conforming elements of a perpendicular ramp, parallel ramp or a blended transition used in combination.

Constrained Turning Space: A Turning Space is considered constrained when there is a barrier such as a curb on the rear of a perpendicular ramp or on 2 or more of the sides of a parallel ramp.

Cross Slope - The slope measured perpendicular to the direction of travel.

Curb Line: A line at the face of the curb that marks the transition between the curb and the gutter, street, or roadway.

Curb Ramp: A combined ramp and landing that accomplishes a change in level at a curb. This element provides street and sidewalk access to pedestrians using wheelchairs.

Detectable Warning: A standardized surface feature built in or applied to walking surfaces or other elements to warn visually impaired people of upcoming hazards. Detectable Warning Surfaces (DWS) must extend the full width of the ramp (excluding flared sides), blended transition, or turning space. The DWS must extend 2 feet minimum in the direction of pedestrian travel. Must contrast visually with adjacent gutter, street or highway, or pedestrian access route surface, flares, either light-on-dark or dark-on-light. DWS panels on a radius must have top corners of adjacent panels to touch, bottom corners of adjacent panels to have a 2 inches maximum gap.

Diagonal Curb Ramp - A curb ramp positioned at the corner of an intersection.

Feasible - Capable of being accomplished with a reasonable amount of effort, cost, or other hardship. With regard to ADA compliance, feasibility is determined on a case-by-case basis. For example, it might not be feasible to install a ramp that meets ADAAG specifications on a very steep hill, but it would be feasible to install an ADAAG ramp at the entrance of a building.

Flare - A sloped surface that flanks a curb ramp and provides a graded transition between the ramp and the sidewalk. Flares bridge differences in elevation and are intended to prevent ambulatory pedestrians from tripping. Flares are not considered part of the accessible route.

Flare 1: Flared sides of perpendicular curb ramps where a sidewalk crosses the curb ramp (max. slope of 10 percent).

Flare 2: Flared sides of perpendicular curb ramps not in sidewalk (max. slope of 25 percent).

Grade - The slope parallel to the direction of travel that is calculated by dividing the vertical change in elevation by the horizontal distance covered.

Grade Breaks: Must be perpendicular to the direction of pedestrian travel at ends of ramps. They shall not be permitted on ramps and turning spaces.

Landing - A level area of sidewalk at the top of a curb ramp facing the ramp path.

Parallel curb ramp - A curb ramp design in which the sidewalk slopes down on either side of a landing; parallel curb ramps require users to turn before entering the street. Parallel ramps have a running slope that is in-line with the direction of sidewalk travel and lower the sidewalk to a level landing where a turn is made to enter the pedestrian street crossing.

Passing Area: A 5 feet x 5 feet area on sidewalks that are less than 5 feet wide when there is not a hard surface passing area of 5 feet minimum width in a 200 feet segment.

Passing space - A section of path wide enough to allow two wheelchair users to pass one another or travel abreast.

Pedestrian Access Route: A continuous and unobstructed path of travel provided for pedestrians with disabilities

Perpendicular curb ramp - A curb ramp design in which the ramp path is perpendicular to the edge of the curb. Perpendicular ramps have a running slope that cuts through or is built up to the curb at right angles or meets the gutter grade break at right angles where the curb is curved.

Right-of-way - Real property rights (whether by fee-simple ownership, by easement, or by other agreement) acquired across land for a purpose, including pedestrian use.

Running cross-slope - The average cross-slope of a contiguous section of a sidewalk or trail.

Running grade - The average of many short, contiguous grades.

Technically infeasible - A technical infeasibility is an exception in the Guidelines for Accessible Public Right-of-Way. It can only be used in an alteration where compliance with applicable provision is technically infeasible. The alteration will comply with Standards to the maximum extent feasible. Technical infeasibilities include major impact to permanent structures and major utilities (ex:municipal water/sewer/storm drain systems, high voltage electrical poles/lines),

excessive street slopes, or the physical terrain, provided an engineering analysis has been completed to demonstrate that work cannot be done without significantly altering the terrain or permanent structures. A lack of project funding is not a technical infeasibility.

Truncated domes - Small domes with flattened tops that are used as tactile warnings at transit platforms and curb edges.

Turning Space: Must be provided at: 1) the top of a perpendicular ramp and, 2) the bottom of a parallel ramp.

Visual warning - The use of contrasting surface colors to indicate a change in environment, such as at a curb ramp where the sidewalk changes to the street.

13. Recommended Reading

2011 Revised Draft Guidelines for Accessible Public Rights-of-Way

Part 2 Designing Sidewalks and Trails for Access

Appendix I

Ramp Evaluation Form

C-170 UDOT Pedestrian Access Evaluation Form

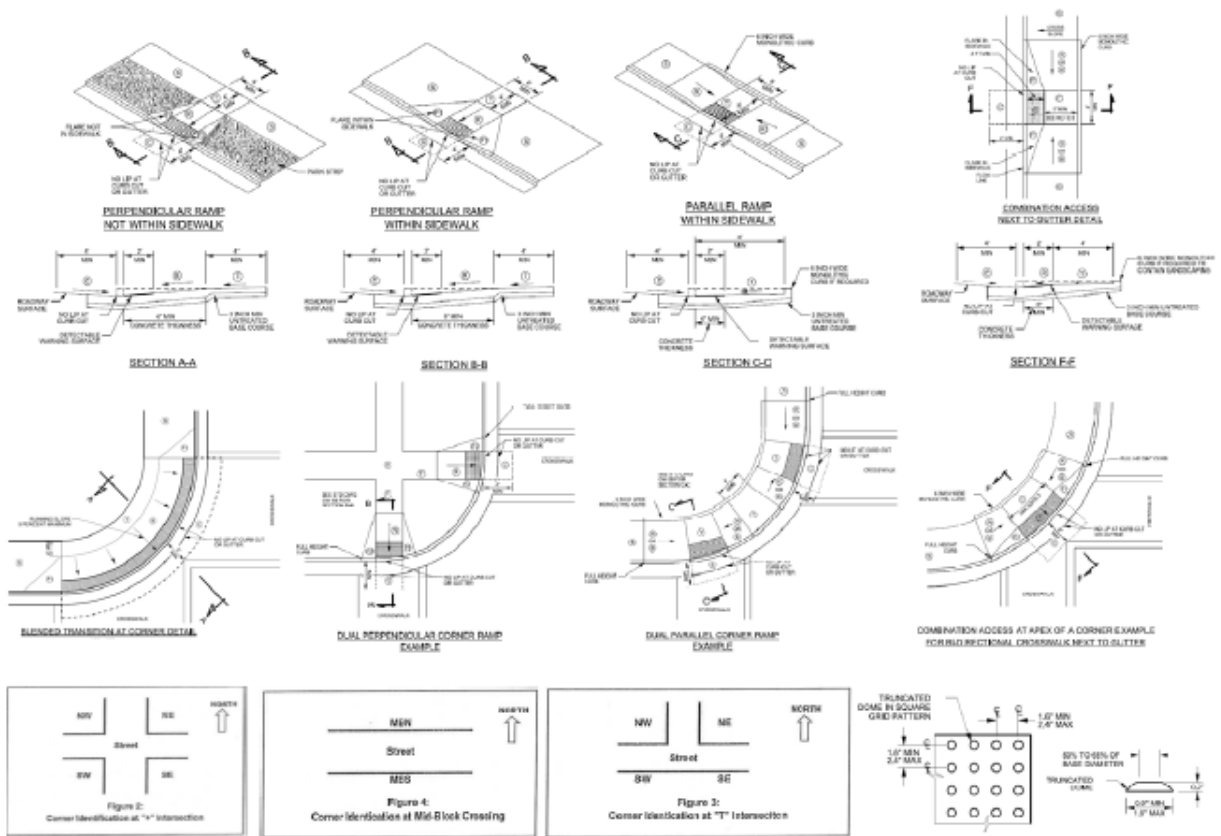
rev. 11/14

INSPECTOR NAME:		PROJECT NAME:					
DATE EVALUATED:		TS_ID:					
Primary Street (SR):		Cross Street:		City:		County:	
Corner or Midblock		Corner (NW, NE, SW, SE, N, S, E, W) or Midblock (MN, MS, ME, MW, MNW, MNE, MSW, MSE)					
ELEMENT	CRITERION	1	P/F	2	P/F	3	P/F
Pedestrian Access Route (PAR) Width	≥4'						
Sidewalk (S)							
Cross Slope	≤2%						
Passing Area (Provide 5'x5', ≤200 ft. spacing)	Yes						
Ramp (R)							
Type	Parallel, Perpendicular, Para-Comb, Perp-Comb						
Running Slope (Not required to exceed 15 ft.)	5.1% ≤ 8.3%						
Cross Slope	*See Below						
Grade Breaks (Prpndclr to ped travel at ends of ramps)	Yes						
Blended Transition (B)							
Type	BT, BT-Comb						
Running Slope	≤5%						
Cross Slope	*See Below						
Turning Space (T)							
Width:	Largest of curb cut width or 4'						
Depth: Unconstrained	4' Min.						
Constrained on rear of (T) serving Perpendicular Ramp or 2 or more (T) sides serving Parallel Ramp	5' Min.						
Running Slope	≤2%						
Cross Slope	*See Below						
Flare							
In Sidewalk (F1) Slope	≤10%						
Not in Sidewalk (F2) Slope	≤25%						
Curb Cut Width							
Serves Single/Bi Direction	≥4' / ≥8'						
Clear Space/Gutter (C)							
Lip at Curb Cut or at Gutter and Road	None						
Clear Space Size	Width, largest of curb cut width or 4'x24'						
Clear Space within crosswalk and outside the parallel vehicle traffic lane	Yes						
Clear Space/Gutter Running Slope	≤5%						
Clear Space/Gutter Cross Slope	* ^ See Below						
Detectable Warning Surface (DWS)							
Type	Polymer, Precast Concrete, Cast Iron						
Spans Full Width of Curb Cut (Excluding Flares)	Yes						
Depth in Direction of Ped Travel	≥2'						
Color Contrast with Surrounding Surface	Yes						
Closest Corner Within 1" from Back of Curb	Yes						
Crosswalk							
Running Slope	≤5%						
Cross Slope	* ^ See Below						
Island							
Island PAR Width	≥5' or N/A						
DWS	Required if PAR Length ≥ 6', prohibited < 6'						
* Cross Slope of (R), (B), (T) or (C) that serves a crosswalk:							
Controlled by STOP or YIELD Sign	≤2%						
Not Controlled by STOP or YIELD Sign	≤Rd Grade						
^ Not Controlled by STOP or YIELD Sign	≤5%						
Midblock	≤Rd Grade						

Comments:
 Technical Infeasibilities? Yes/ No
 If yes, describe the technical infeasibilities that prevent the meeting of the ADA requirements:

C-170 UDOT Pedestrian Access Evaluation Form

rev. 11/14



Terms

Blended Transition: A connection between the pedestrian access route at the level of the sidewalk and the level of the pedestrian street crossing that has a grade of 5 percent or less. Blended transitions around a corner without a turning space should only be constructed when technical infeasibility prevents the installation of a turning space.

Combination Ramp: A ramp using conforming elements of perpendicular curb ramp, parallel curb ramp or a blended transition used in combination.

Detectable Warning Surface (DWS): DWS must extend the full width of the ramp (excluding flared sides), blended transition, or turning space. The DWS must extend 2 feet minimum in the direction of pedestrian travel. Must contrast visually with adjacent gutter, street or highway, or pedestrian access route surface, flares, either light-on-dark or dark-on-light. DWS panels on a radius must have top corners of adjacent panels to touch, bottom corners of adjacent panels to have a 2 inches maximum gap.

Flare 1: Flared sides of perpendicular curb ramps where a sidewalk crosses the curb ramp (max. slope of 10 percent).

Flare 2: Flared sides of perpendicular curb ramps not in sidewalk (max. slope of 25 percent).

Grade Breaks: Must be perpendicular to the direction of pedestrian travel at ends of ramps. They shall not be permitted on ramps and turning spaces.

Parallel Curb Ramp: Have a running slope that is in-line with the direction of sidewalk travel and lower the sidewalk to a level landing where a turn is made to enter the pedestrian street crossing.

Passing Area (PA): Provide a 5 ft x 5 ft PA on sidewalks of less than 5 ft wide when there is not a hard surface PA of 5 ft min width in a 200 ft segment.

Pedestrian Access Route: A continuous and unobstructed path of travel provided for pedestrians with disabilities.

Perpendicular Curb Ramp: Have a running slope that cuts through or is built up to the curb at right angles or meets the gutter grade break at right angles where the curb is curved.

Turning Space: Must be provided at: 1) the top of a perpendicular curb ramp and, 2) the bottom of a parallel curb ramp.

Turning Space (Constrained): A Turning space is considered constrained when there is a barrier such as a curb are on the rear of a perpendicular ramp or on 2 or more of the sides of a parallel ramp. The Turning Space depth for unconstrained is 4 feet min. and for constrained is 5 feet min.

Note: The examples above do not represent all situations that may be encountered in the field, site conditions will vary. Configuration of ramp, blended transition, turning space, and clear space may be changed, but they must meet dimensions and slopes as required. The use of items such as flares and curbs are at the discretion of the Engineer. Just because a given ramp does not look exactly like one of the examples does not mean it is incorrect.

The C-179 UDOT Pedestrian Access Evaluation Form can also be found online at:

<http://www.udot.utah.gov/main/f?p=100:pg:0:::1:T,V:584>

Appendix II

Standard Drawings

SLOPE TABLE

ITEM	MAX RUNNING SLOPE *	MAX CROSS SLOPE **
1. TURNING SPACE	2%	2% (a)
2. RAMP	6.25% (a)	2% (b)
3. BLENDED TRANSITION	5.1% MIN	2% (b)
4. CLEAR SPACE/GUTTER **	5%	2% (b)
5. SIDEWALK	5%	2% (b)
6. FLARE WITH SIDEWALK	10%	2% (b)
7. FLARE NOT IN SIDEWALK	25%	2% (b)
8. CROSSWALK	5%	2% (b)

* RUNNING SLOPE IS IN THE DIRECTION OF PEDESTRIAN TRAVEL. CROSS SLOPE IS PERPENDICULAR TO PEDESTRIAN TRAVEL.
 ** SEE CLEAR SPACE/GUTTER DETAIL C

(a) LENGTH OF RUNNING SLOPE FOR RAMP IS NOT REQUIRED TO EXCEED 15 FT.
 (b) MAINTAIN CONSISTENCY OF CLEAR SPACE RUNNING SLOPE ACROSS ENTIRE CURB CUT. WARP OUTTER PAN TO MEET REQUIRED CLEAR SPACE SLOPE AT CURB CUT.
 (c) MEASURE FLARE SLOPE PARALLEL TO CURB LINE.
 (d) DO NOT EXCEED THE MAXIMUM PERCENT GRADE FOR THE CROSS SLOPE AT CROSSWALKS WITHOUT A STOP ON YIELD SIGN AND AT MIDBLOCK CROSSWALKS.
 (e) DO NOT EXCEED 5% CROSS SLOPE AT CROSSWALKS AT INTERSECTIONS WITHOUT A STOP ON YIELD SIGN.
 (f) DO NOT EXCEED A CROSS SLOPE EQUAL TO THE STREET OR HIGHWAY GRADE AT MIDBLOCK CROSSWALKS.

GENERAL NOTES APPLICABLE TO THE GW 5 SERIES:

1. DIMENSIONS SHOWN IN THE SLOPE TABLE ARE NOT SUBJECT TO CONVENTIONAL INDUSTRY TOLERANCES. CONSTRUCT SIDEWALKS AND RAMPS SUCH THAT THE MAXIMUM ON MINIMUM VALUES ARE NOT EXCEEDED. WORK THAT EXCEEDS THOSE VALUES WILL NOT BE ACCEPTED.
2. SITE CONDITIONS WILL VARY. CONFIGURATION OF RAMP, BLENDED TRANSITION, TURNING SPACE, AND CLEAR SPACE MAY BE CHANGED, BUT THEY MUST MEET DIMENSIONS AND SLOPES SHOWN HERE. THE USE OF ITEMS SUCH AS PLANS AND CURBMASS ARE AT THE DISCRETION OF THE ENGINEER.
3. PERPENDICULAR AND PARALLEL RAMPS SHOWN ON STD DWG GW 5A AND THE COMBINATION ACCESS NEXT TO GUTTER DETAIL SHOWN ON STD DWG GW 5B ARE ACCEPTABLE FOR USE AT MIDBLOCK OR CORNER INSTALLATIONS. DIMENSIONS SHOWN ON STD DWG GW 5A AND STD DWG GW 5B AND ON STD DWG GW 5C AND ON STD DWG GW 5D FOR OTHER EXAMPLES OF CORNER INSTALLATION.
4. RAMP GRADE BREAK MUST BE PERPENDICULAR TO THE RUNNING SLOPE.
5. TURNING SPACE WIDTH: USE THE LENGTH OF THE CURB CUT WIDTH ON A 4 FT MINIMUM WIDTH X 4 FT MINIMUM DEPTH.
6. TURNING SPACE DEPTH: USE A 4 FT MINIMUM DEPTH. THE TURNING SPACE IS UNCONSTRAINED. USE A 4 FT MINIMUM DEPTH WHEN THE TURNING SPACE IS CONFINED. THE TURNING SPACE IS UNCONSTRAINED WHEN THERE IS A BARRIER SUCH AS A CURB ON THE REAR OF A PERPENDICULAR RAMP OR ON 2 OR MORE OF THE SIDES OF A PARALLEL RAMP.
7. CONSTRUCT BLENDED TRANSITION WITHOUT A TURNING SPACE ONLY WHEN TECHNICAL PREFAIRITY PREVENTS THE INSTALLATION OF A TURNING SPACE.
8. LOCATE CURB CUT WITHIN CROSSWALK.
9. USE A 4 FT MINIMUM CURB CUT FOR BIDIRECTIONAL CROSSWALKS. USE A 4 FT MINIMUM CURB CUT UPON APPROVAL OF THE DESIGN THROU THE OPERATIONS DIVISION.

DETECTABLE WARNING SURFACE

DETAIL A

DETECTABLE WARNING SURFACE PANEL GAP

DETAIL B

DETECTABLE WARNING SURFACE

DETAIL C

CLEAR SPACE/GUTTER

DETAIL C

PEDESTRIAN ACCESS

STANDARD DRAWING NO. TITLE

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION

SALT LAKE CITY, UTAH

REVISIONS

DATE: NOV/26/2014

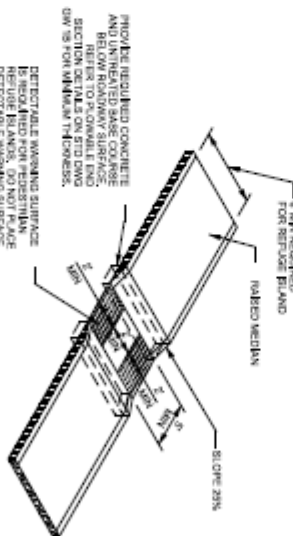
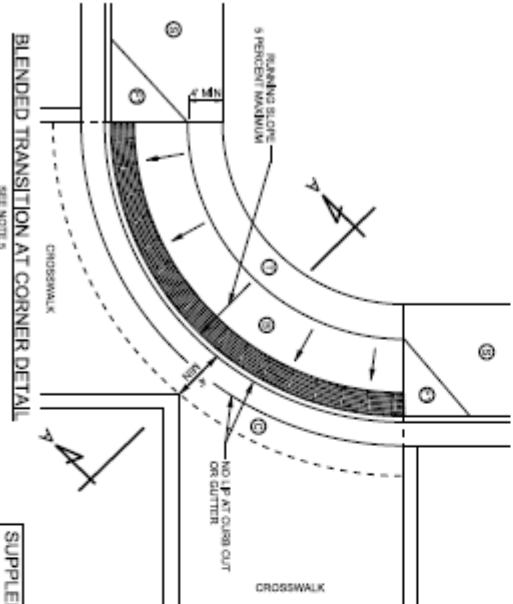
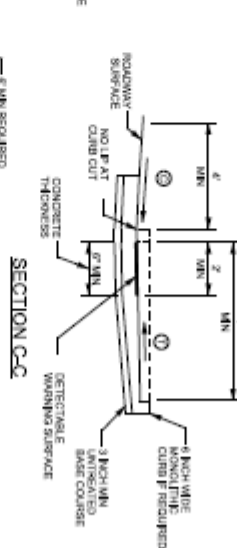
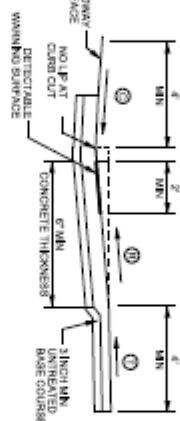
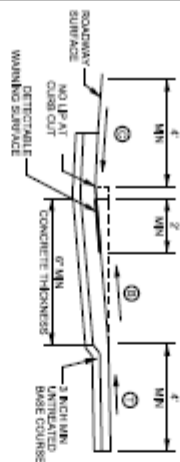
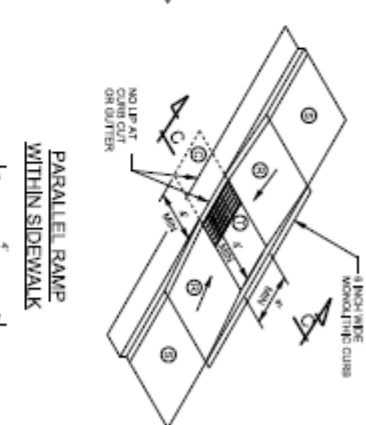
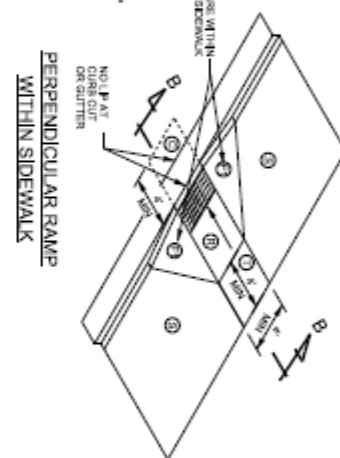
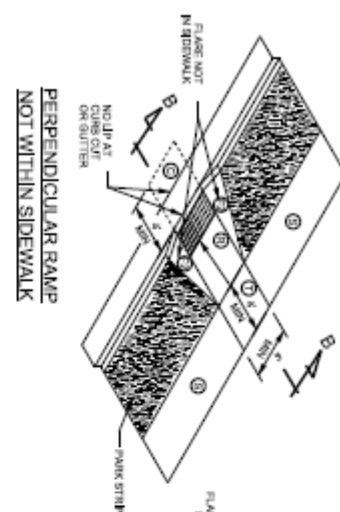
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CHECKED: [Signature]

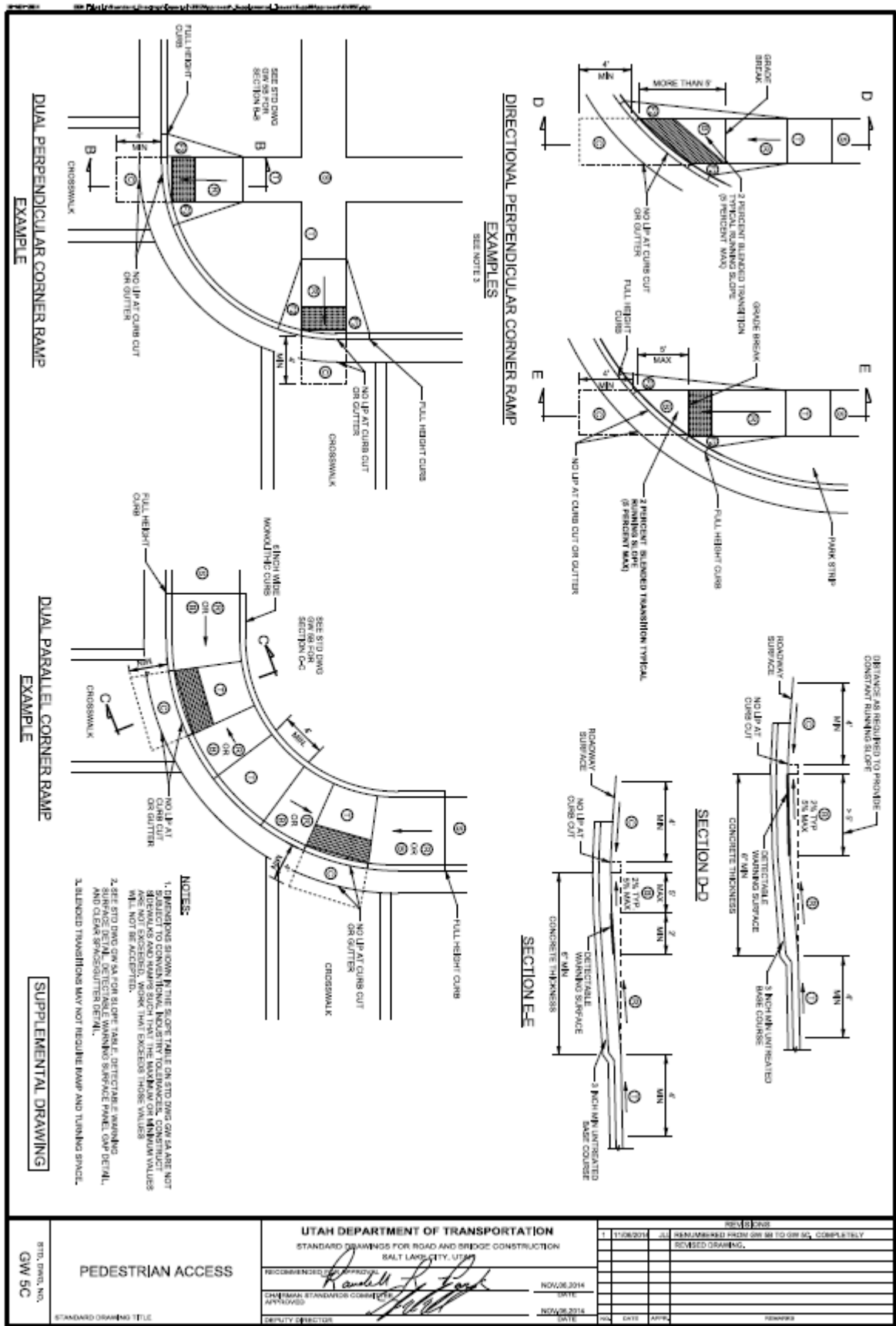
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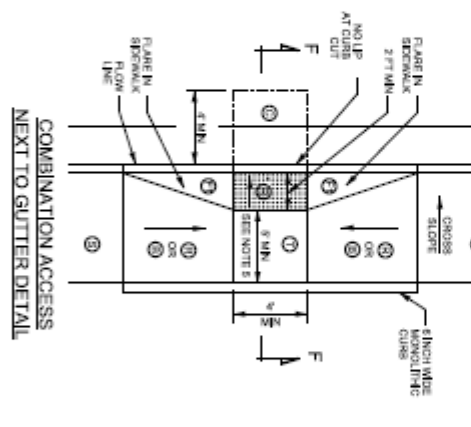
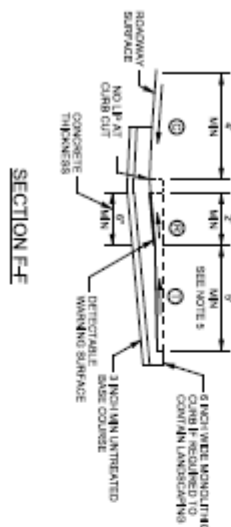
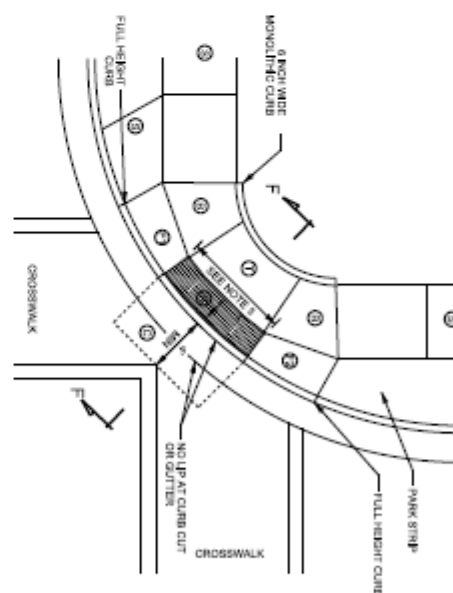
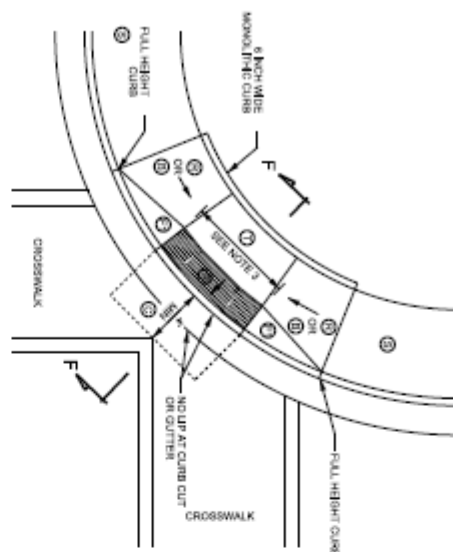
DEPUTY DIRECTOR



1. REFER TO STD DWG GW-6A FOR GENERAL NOTES PERTAINING TO THIS DRAWING.
- NOTES:
2. REFER TO STD GW OR A-9 FOR GENERAL NOTES PERTAINING TO THIS DRAWING.
3. PANEL GROUND DETAIL AND DETECTABLE WARNING SURFACE DETAIL.
4. REFER TO STD GW OR A-9 FOR GENERAL NOTES PERTAINING TO THIS DRAWING.
5. USE A 6 IN MINIMUM CURB CUT FOR COLLECTION TROUGH CROSSOVERS; USE A 4 IN MINIMUM CURB CUT UPON APPROVAL OF THE DESIGNER.

GW 5B BRG, DATE, NO.	PEDESTRIAN ACCESS	UTAH DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION SALT LAKE CITY, UTAH		9513-208		
				1	11/26/2014 J1 GEN-AMM REQ FROM SW 5A TO SW 5A, COMPLETELY REVISED DRAWING.	
		RECOMMENDED FOR APPROVAL	NOV 06 2014			
		CHAIRMAN STANDARD COMMITTEE	DATE			
		APPROVED	NOV 06 2014			
STANDARD DRAWING TITLE		DRAWING DESCRIPTION	NO.	DATE	APPROV.	DESIGNER





1. REFERS TO STUD DATA FOR GENERAL NOTES PERTAINING TO THE DRAWING.
2. REFERS TO STUD DATA FOR ALONG-TABLE, DETAILABLE AND/OR SURFACE DETAIL, DETAILABLE AND/OR SURFACE PANEL, GUT DETAIL, AND GUT DETAIL.
3. USE A 6 FT MINIMUM CURB CUT FOR STRUCTURAL CROSSWALK. USE A 4 FT MINIMUM CURB CUT FOR APPROACH OR THE NEIGHBORHOOD OPERATIONS ENGINEER.
4. TURNING SPACE DEPTH: USE A 4 FT MINIMUM DEPTH WHEN THE TURNING SPACE IS CONSTRUCTED. THE TURNING SPACE IS THE REAR OF A PERPENDICULAR RAMP OR ON OR MORE OF THE SIDES OF A PARALLEL RAMP.
5. THE TURNING SPACE IS SECTION 4.7 SERVICE ROAD PARALLEL, AND PERPENDICULAR, AND TURNING SPACE DEPTH OF THE TURNING SPACE IS 4 FT WHEN THE REAR OF THE TURNING SPACE OF A PERPENDICULAR RAMP IS NOT CONSTRUCTED.
6. DATA WARS PREPARED, USE COMBINATION ACCESS ONLY WITH APPROVAL OF THE DESIGN TEAM, ENGINEER.

SUPPLEMENTAL DRAWING

RTD, CHEN, WJ. GW 5D PEDESTRIAN ACCESS STANDARD DRAWING TITLE	UTAH DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION SALT LAKE CITY, UTAH		11/08/2014 20	REINFORCED FROM GW 5C TO GW 5D, COMPLETELY REPEATED DRAWING.
	RECOMMENDED BY:			
	CALIFORNIA STANDARDS BOARD APPROVAL:	NOV/06/2014	DATE:	
	DESIGNED BY:	NOV/06/2014	DATE:	
	DRAWN BY:		APPROVED BY:	
	CHECKED BY:		PERMITTED BY:	

